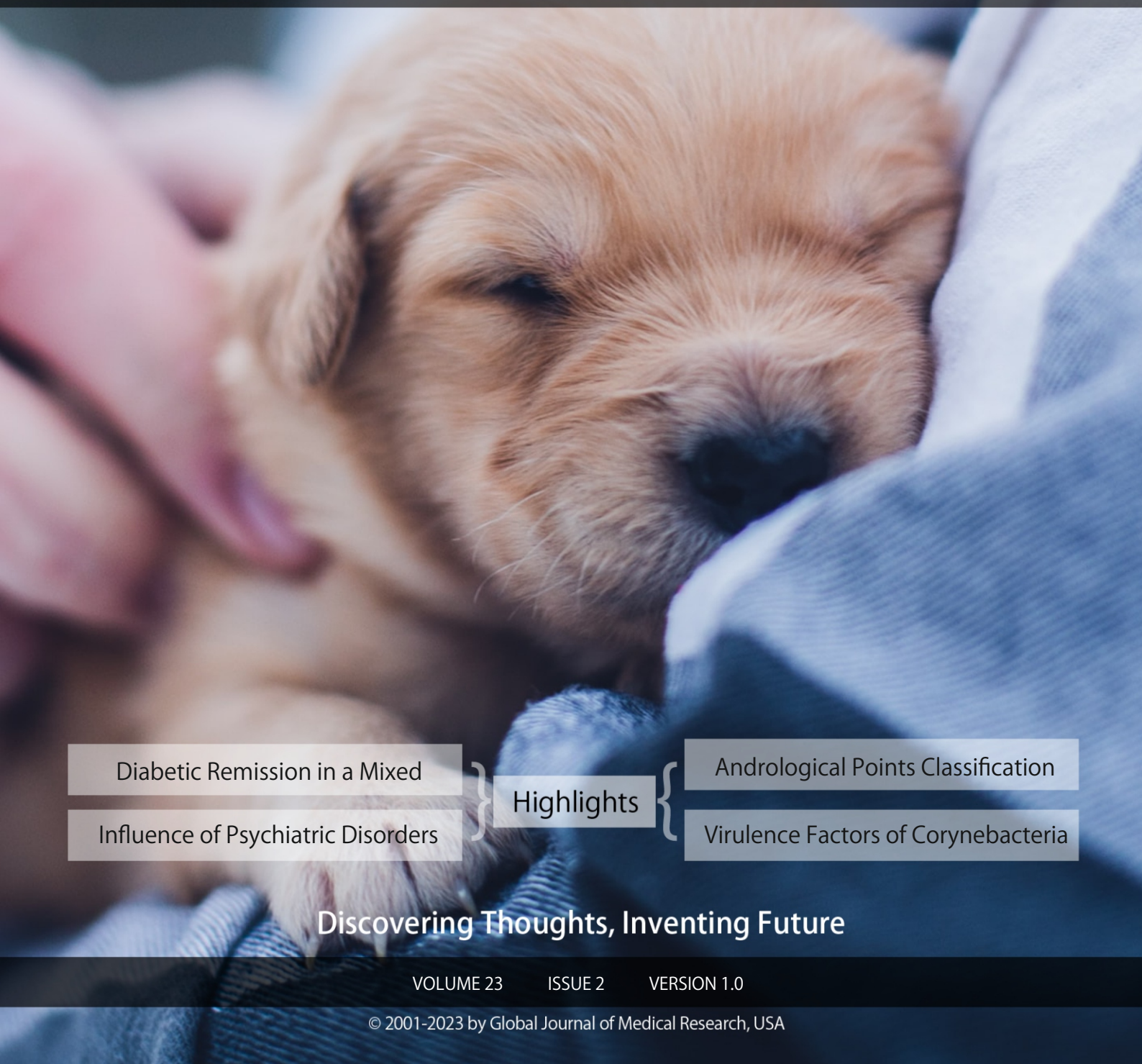


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Veterinary Science & Veterinary Medicine



Diabetic Remission in a Mixed

Influence of Psychiatric Disorders

Highlights

Andrological Points Classification

Virulence Factors of Corynebacteria

Discovering Thoughts, Inventing Future

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VETERINARY SCIENCE AND VETERINARY MEDICINE



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Andrological Points Classification (CAP) Nelore Bulls (*Bos Taurus Indicus*) of Different Ages, Kept in Reproduction Central

By Ana Clara Ferreira Batista, Manoel Lucas Carvalho da Silva,
Augusto Urzedo Pereira Queiroz, Amanda Pifano Neto Quintal
& André Belico de Vasconcelos

Universidade de Uberaba

Summary- The objective of this study was to evaluate the reproductive potential of Nelore bulls at different ages, using the Andrological Points Classification system and to analyze the physical and morphological characteristics of the semen, when submitted to the cryopreservation protocol. Thus, 15 Nelore bulls were evaluated, divided into three groups according to age. The first group consisted of bulls aged ≤ 4 years, the second group of bulls aged $5 \geq$ to ≤ 7 years, and the third group of bulls aged $8 \geq$ to ≤ 10 years. From the evaluations performed, biometrics testicular and semen morphology, were relevant to determine the andrological classification by points (CAP index). For this purpose, the semen was collected using the electroejaculation method. And the results were expressed as mean and standard deviation.

Keywords: bovine; males; production; sanity.

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ANDROLOGICAL POINTS CLASSIFICATION CAP NELORE BULLS BOS TAURUS INDICUS OF DIFFERENT AGES KEPT IN REPRODUCTION CENTRAL

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Andrological Points Classification (CAP) Nelore Bulls (*Bos Taurus Indicus*) of Different Ages, Kept in Reproduction Central

Classificação Andrológica Por Pontos (CAP) De Touros Nelore (*Bos Taurus Indicus*) Em Diferentes Idades, Mantidos Em Central De Reprodução

Ana Clara Ferreira Batista ^α, Manoel Lucas Carvalho da Silva ^ο, Augusto Urzedo Pereira Queiroz ^ρ, Amanda Pifano Neto Quintal ^ω & André Belico de Vasconcelos [¥]

Summary- The objective of this study was to evaluate the reproductive potential of Nelore bulls at different ages, using the Andrological Points Classification system and to analyze the physical and morphological characteristics of the semen, when submitted to the cryopreservation protocol. Thus, 15 Nelore bulls were evaluated, divided into three groups according to age. The first group consisted of bulls aged ≤ 4 years, the second group of bulls aged $5 \geq \leq 7$ years, and the third group of bulls aged $8 \geq \leq 10$ years. From the evaluations performed, biometrics testicular and semen morphology, were relevant to determine the andrological classification by points (CAP index). For this purpose, the semen was collected using the electroejaculation method. And the results were expressed as mean and standard deviation. The variables were submitted to ANOVA, Tukey and Pearson's correlation tests, with the differences between the groups being significant at the $p < 0.05$ level. The results describe differences between the groups and in the sperm viability between the groups when the samples are submitted to different moments of evaluation (In natura, post-thaw and thermoresistance test). It is concluded that the Nelore breed, presents variation in the sperm quality, with a very small loss on the older ones.

Keywords: bovine; males; production; sanity.

Resumo- O objetivo do trabalho foi avaliar o potencial reprodutivo de touros da raça Nelore em diferentes idades, pelo sistema de Classificação Andrológica por Pontos e analisar as características físicas e morfológicas do sêmen, quando submetidos ao protocolo de criopreservação. Assim, foram avaliados 15 touros da raça Nelore padrão, divididos em três grupos conforme a idade. O primeiro grupo foi constituído de touros com idade ≤ 4 anos, o segundo, de touros com idade $5 \geq \leq 7$ anos, e o terceiro grupo de

touros, com idade $8 \geq \leq 10$ anos. Das avaliações realizadas a biometria testicular e morfológica do sêmen, foram relevantes para determinar a classificação andrológica por pontos (índice CAP). Para tal, a colheita do sêmen foi realizada pelo método de eletroejaculação. E os resultados foram expressos em média e desvio padrão. As variáveis foram submetidas às análises de ANOVA, Tukey e teste de correlação de Pearson, sendo as diferenças entre os grupos significativas ao nível $p < 0,05$. Os resultados descrevem diferenças entre os grupos e na viabilidade espermática entre os grupos quando as amostras são submetidas a diferentes momentos de avaliação (In natura, pós-descongelamento e teste de termoresistência). Conclui-se que a raça Nelore padrão, apresenta variação quanto a qualidade espermática, com uma perda muito pequena quanto mais velhos.

Palavra Chave: bovino; machos; produção, sanidade

I. INTRODUÇÃO

A fertilidade de um touro é uma condição fisiológica ligada a aspectos clínicos andrológicos básicos, que podem ser influenciados pela idade, ambiente e a genética do animal (Ntemka et al., 2016; Silva et al., 2017). Para análise andrológica, a avaliação do testículo é um fator determinante para a reprodução de bovinos (Salvador et al., 2008), uma vez que o número total de espermatozoides produzidos, tem relação com as características testiculares (Majic'-Balic' et al., 2012).

A avaliação da fertilidade de um touro é dada por aspectos das características espermáticas e andrológicas. No que se refere ao exame microscópico, a concentração, motilidade e morfologia espermática são as principais métricas envolvidas para a determinação de índices reprodutivos satisfatórios (Arruda et al 2011).

A variação da fertilidade de touros relacionada à idade não está devidamente descrita na literatura, devido à dificuldade de acompanhar estes animais tanto em centrais de colheita e processamento de sêmen quanto nas fazendas, já que animais que apresentem diminuição da qualidade espermáticas, são prontamente substituídos (Staub e Johnson, 2018).

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O potencial reprodutivo de um touro é determinado pela somatória de fatores ligados à características andrológicas, como o perímetro escrotal (PE) e à qualidade do sêmen (Ronda et al., 2019). Desta forma o sistema de pontuação (CAP) como estabelecido por Fonseca e colaboradores (1997) tende a relacionar aspectos clínicos andrológicos que de certa forma podem estar vinculados a idade do animal.

Neste sentido, objetivo deste trabalho foi avaliar o potencial reprodutivo de touros da raça Nelore em diferentes idades, pelo sistema de Classificação Andrológica por Pontos (CAP) e analisar as características macro e microscópicas do ejaculado in natura e quando este submetidos a processamento e criopreservação.

II. MATERIAL E MÉTODO

Este estudo foi realizado no município de Uberaba, Minas Gerais, na empresa Central Uberaba Genética, situada na Região do Triângulo Mineiro, durante o período de outubro a dezembro, com temperatura média de 22,3°C e precipitação pluviométrica anual de 1.571 mm³. O estudo foi aprovado no Comitê de Ética em Experimentação Animal da Universidade de Uberaba –CEEA–045/2017.

O sistema de manejo dos touros respeitava um animal/piquete, em área de lazer com sombreamento artificial de aproximadamente 3 m²/animal, constituído de pastagem formada por grama-estrela (*Cynodon nlemfuensis*). Todos os animais receberam o mesmo manejo alimentar com 10 Kg de silagem, concentrado 12,5% de proteína bruta (PB) duas vezes ao dia e fornecimento mistura mineral (Hágil Terapêutica®) e água *ad libitum*.

Foram estudados 15 touros da raça Nelore padrão divididos em três grupos por idade. O primeiro grupo constitui de touros com idade ≤ 4 anos (N=5); o segundo grupo de touros com idade $5 \leq a \leq 7$ anos (n=5); o terceiro grupo $8 \geq a \leq 10$ anos (N=5). Os animais foram submetidos a avaliação da biometria testicular, exames macro e microscópico do sêmen e a classificação andrológica por pontos (CAP).

As avaliações de biometria testicular foram realizadas no início do estudo e para tal foi utilizada fita métrica milimetrada (Walmur 80 cm), com posicionamento na região mediana escrotal, no ponto de maior dimensão, envolvendo as duas gônadas e a pele escrotal (Manual CBRA, 2013).

Foram realizadas três coletas por animal com intervalos de 15 dias executadas pelo método de eletroejaculação, utilizando aparelho eletroejaculador modelo Walmur boijector 65^a. Os ejaculados foram mantidos em tubos coletores graduados acoplados a funis previamente aquecidos em estufa a 37°C.

Na avaliação de volume utilizou-se de proveta graduada e a concentração espermática foi estimada

por espectrofotometria (Genesys 20®). A avaliação da morfologia espermática foi realizada pela técnica de preparação úmida, com auxílio de microscopia de campo claro em aumento de 100X (Nikon Eclipse 50i, Nikon, Tóquio, Japão) e corante rosa bengala (Manual CBRA, 2013). Foram avaliados 100 espermatozoides por amostra, os quais foram analisados quanto a defeitos espermáticos maiores, menores e totais, conforme critérios estabelecidos por Blom (1973).

Os ejaculados foram também avaliados quanto a motilidade total e vigor. Para tal foram pipetados 10µL das amostras em uma lâmina previamente aquecida a 37°C em mesa aquecedora modelo MTB2030 (NeoVet) e coberta por uma lamínula. As amostras foram avaliadas em aumento de 10x em microscopia de campo claro (Olympus BX41®, Tóquio, Japão), e posteriormente foram diluídas com diluente Optixcell®.

As amostras foram congeladas, utilizando o mesmo diluente, concentração de 35x10⁶sptz/dose, e envasadas em paletas de 0,25 ml. Por questões éticas relacionadas ao sigilo empresarial, não serão apresentados detalhes da curva de congelamento. Imediatamente após descongelamento, e após teste de termorresistência lento (38°C/5 horas) foram realizadas novas análises de motilidade e vigor.

A CAP, foi realizada conforme descrita por Ronda e colaboradores (2019), na qual os touros foram classificados de acordo com o perímetro escrotal (até 40 pontos), com aspectos físicos (motilidade e vigor) que pode chegar até 25 pontos e de acordo com a morfologia espermática (defeitos maiores e totais) chegando até 35 pontos. Assim que somados os valores é possível encontrar reprodutores excelentes, muitos bons, bons e questionáveis. Para tal foram pontuados os aspectos físicos e morfológicos do sêmen e estes, relacionados com o PE em função da faixa etária (Fonseca et al., 1997).

Para realização das análises estatísticas foi utilizado o programa Graphpad Prism 6.0 (Graphpad software Inc., San Diego, USA). Inicialmente foi realizado o teste de normalidade Shapiro-Wilk e teste para verificar a homogeneidade das variâncias (teste de homocedasticidade). Resultados com distribuição normal foram analisados pelo teste estatístico ANOVA seguido pelo teste Tukey. Foi utilizado o teste de correlação de Pearson e as diferenças foram consideradas significativas quando o valor de p foi $< 0,05$.

III. RESULTADO E DISCUSSÃO

Os valores das variáveis estudadas estão apresentados na tabela 1, quanto aos valores mínimo e máximo, bem como a média de todos os animais do estudo.

Tabela 1: Valores Mínimos, Máximos Médias e Desvio Padrão (D.P.) Das Variáveis Analisadas dos Touros da Raça Nelore, Mantidos em Central de Produção de Sêmen (N=15)

Variáveis (n=15)	Mínimo	Máximo	Media±DP
Idade (anos)	3	10	5,9±2,3
Perímetro Escrotal (cm)	36	47	41,5± 3
Volume (mL)	3	16	7,2±3,7
Concentração (espz x10 ⁶ /mL)	502	2823	1503,7±599,1
Motilidade (%)	31	80	64,1±10,4
Vigor (1-5)	3	5	3,8±0,4
Defeitos maiores (%)	1	30,5	5,3±5,4
Defeitos menores (%)	0	35	3,8±6,6
Defeitos Totais (%)	2	45	9,1±9,5

Na análise entre os grupos estudados foi observado que o volume do ejaculado e a concentração espermática foram maiores em touros (maduros) com idade entre 5 ≥ a ≤ 7 anos (Grupo 2), em relação ao grupo de touros jovens (Grupo 1) e senis (Grupo 3) (Tabela 2).

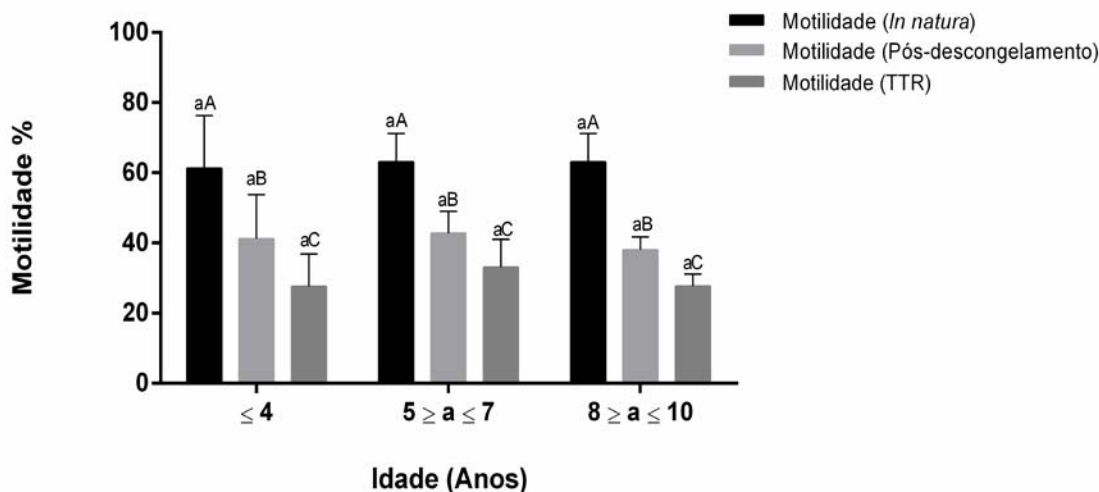
Tabela 2: Médias E Desvio Padrão (D.P.) Em Relação Aos Volumes Seminais E Concentrações Espermáticas

Classificação	Idade	Volume (ml)	Concentração espermática (10 ⁶ /ml)
Grupo 1	≤ 4 anos	6,5 ^c	1324,2 ^b ± 444,8
Grupo 2	5 ≥ a ≤ 7 anos	11,0 ^a	1729,7 ^a ± 531,2
Grupo 3	8 ≥ a ≤ 10 anos	8,2 ^b	1449,8 ^b ± 662,8

Letras diferentes indicam diferença significativa entre os parâmetros (p<0,05)

Estudos realizados por Silva e Colaboradores (2011) e Ahmad e colaboradores (2011) apontam que o volume do ejaculado e a concentração espermática aumentam em touros maduros quando comparados aos jovens. Por conseguinte, observa-se também que em touros *B. indicus* após 7,5 anos de idade há uma diminuição tanto no volume quanto na concentração, uma vez que há uma diminuição na espermatogênese (Ahmad et al., 2011; Silva et al., 2017).

Dentre as avaliações tradicionais da qualidade espermática, a motilidade é um fator para prever a fertilidade do sêmen (Sullivan, 1970). No presente estudo a motilidade, foi analisada em três momentos: *in natura*, pós-descongelamento e após a análise do pós-descongelamento foi realizado o teste de termo resistência (Figura 1).



Two-Way ANOVA p = 0,27 (Idade) e p<0,0001 Motilidade

Figura 1: Médias em relação aos momentos de avaliação (*in natura*, pós-descongelamento e teste de termo resistência). Letras minúsculas indicam significância entre as idades, quanto aos diferentes grupos (p<0,05). Letras maiúscula diferentes indicam diferença significativa entre os momentos de avaliação no mesmo grupo (p<0,05)

Na análise da motilidade do sêmen *in natura* entre os três grupos etários não se observou diferença, como também para as amostras pós-descongelamento e pós teste de termo resistência. Estes resultados também foram reportados por Hallap e colaboradores (2006) ao avaliar grupos de animais jovens e adultos quanto a motilidade total.

O que se observa também entre os grupos etários é que todos apresentam diminuição na motilidade após os momentos de avaliação (*in natura*, pós-descongelamento e teste de termo resistência), seguindo o mesmo perfil de queda. Ahmad e colaboradores (2011) relatam que a motilidade espermática é alterada pelo efeito da criopreservação e não pela idade dos animais.

Uma questão que pode ser apontada é que espermatozoides de touros mais velhos atingem a hiperativação mais prontamente do que os touros jovens e que espermatozoides hiperativados são caracterizados por uma motilidade menos linear e progressiva (Hallap et al., 2004).

Por outro lado, em animais jovens é comum que ocorra alto nível de degenerações das células espermáticas desde a primeira geração de células, resultando em um baixo rendimento da gametogênese

com consideráveis perdas durante as divisões mitóticas e meióticas. Tais espermatozoides podem não apresentar toda a maturação espermática. Isto resulta em imaturidade quanto aos aspectos bioquímicos, fisiológicos e morfológicos (Valentim et al., 2002). Esse fato pode ser explicado devido a touros da raça Nelore alcançarem a fase reprodutiva mais tardiamente que animais taurinos, por volta dos 30 aos 36 meses de idade (Silveira et al., 2010) e por nesse trabalho se tratar de touros contratados por central de inseminação, os quais por maioria das vezes tem os ejaculados coletados após alcançarem tal fase. Anteriormente a contratação, os animais se encontravam em propriedades em diversas regiões do Brasil, os quais podem ter passado por balanço energético negativo durante a fase pré púbere e/ou de puberdade, causando um atraso na cronologia reprodutiva desses animais (Miranda Neto et al., 2011).

Quanto ao vigor, não diferiu entre os grupos em nenhuma das etapas analisadas, como observado por Silva e colaboradores (2009). Nas análises das características morfológicas se observa uma convergência de dados dentro dos grupos (Figura 2), sem qualquer diferença entre os valores em cada grupo.

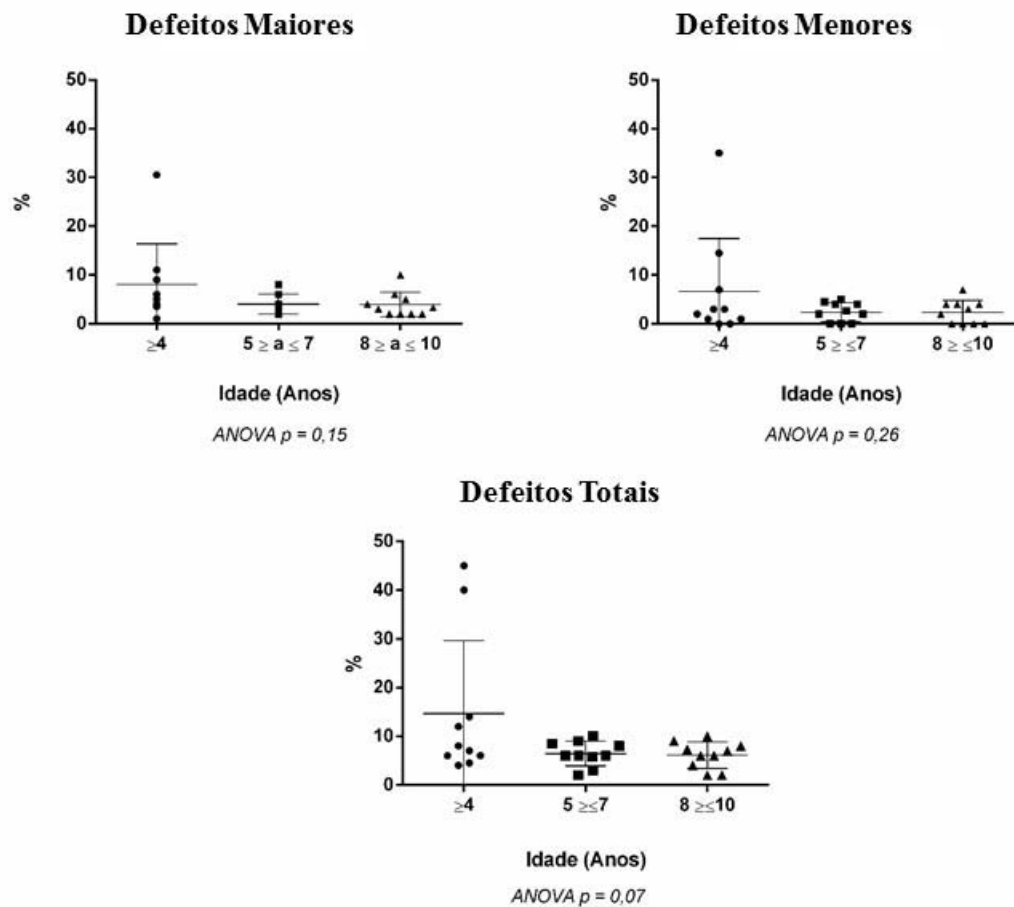


Figura 2: Médias em Relação Análise de Características Morfológicas do Sêmen

Contudo, na análise entre os grupos observou-se que os animais do Grupo 1 (≤ 4 anos), apresentaram uma maior média ($p > 0,05$) de defeitos maiores (8,0%) quando comparado aos outros grupos: Grupo 2 ($5 \geq a \leq 7$ anos) (4,0%) e Grupo 3 ($8 \geq a \leq 10$ anos) (3,9%). Este resultado também foi encontrado para os defeitos menores (6,7%), (2,4%) e (2,4%), respectivamente. O que reflete no parâmetro de defeitos totais, Grupo 1 (14,7%), Grupo 2 (6,4%) e Grupo 3 (6,1 %).

Oliveira e colaboradores (2011), observaram que touros adultos produzem sêmen com menor porcentagem de defeitos espermáticos quando comparados a touros jovens, pois com o avançar da idade, ocorre uma diminuição da presença de defeitos em resultado do tamanho do perímetro escrotal, já que animais dessa idade apresentam maior perímetro, maior capacidade de produção de testosterona (estimula o processo espermatogênico) e, conseqüentemente, maior capacidade para produzir sêmen de melhor qualidade, alcançando a estabilidade, na qual o potencial reprodutivo do touro é efetivo (Miranda Neto et al., 2011).

Outro ponto é que a avaliação da maturidade sexual e da fertilidade em touros também pode ser caracterizada pela medida da circunferência escrotal associada as características do ejaculado (principalmente motilidade e morfologia espermática) (Silva et al., 2002).

Assim alguns touros podem apresentar baixa taxa de fertilidade, mesmo apresentando características espermáticas satisfatórias, fato que pode estar relacionado a características morfofisiológicas do próprio espermatozoide (Boe-Hansen et al., 2018), que pode ser explicada pela dinâmica da espermatogênese, sendo que está depende de diversas condições endócrinas, fisiológicas.

Em virtude disto optou-se pela CAP como critério de avaliação para prever fertilidade, por esta abranger diferentes condições que norteiam a qualidade espermática. Observou-se que animais mais velhos tendem a apresentar uma CAP melhor ($8 \geq a \leq 10$ anos - 85,9) e ($5 \geq a \leq 7$ anos - 84,9), quando comparados a animais mais jovens (≤ 4 anos - 78,3). A partir desta decisão, pôde-se determinar através da CAP, mediante a soma diversos fatores ligados à reprodução, em especial aqueles relacionados ao PE e qualidade do sêmen, quais os aspectos reprodutivos devem ser melhor apreciados durante avaliação de touros (Silva et al., 2002).

Esta condição é reforçada quando realizada a correlação entre a CAP e a idade dos animais (Figura 3), a qual demonstra uma relação positiva entre estas características, tendo em vista que aspectos morfofuncionais dos touros são importantes para a reprodução de bovinos da raça Nelore, conforme apontado por Valentim e colaboradores (2002) e Salvador e colaboradores (2008).

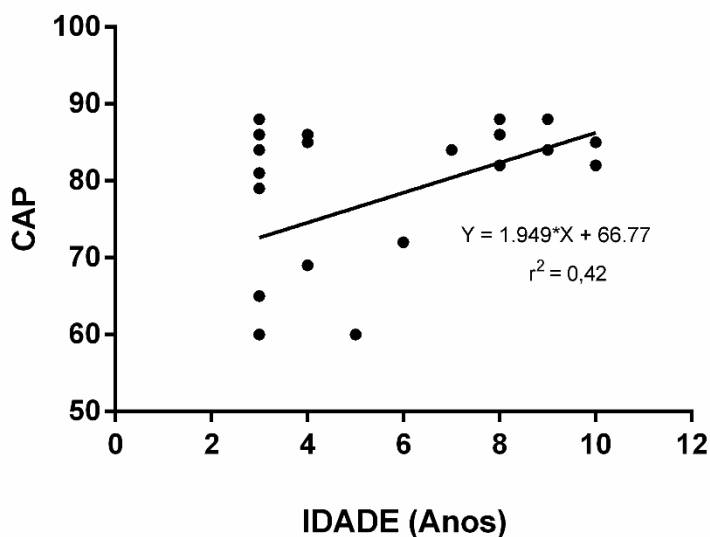


Figura 3: Teste de correlação de Pearson. Classificação andrológica por pontos (CAP)

IV. CONCLUSÃO

Concluiu-se no presente estudo que os touros da raça Nelore padrão, podem sofrer influência na qualidade seminal devido idade quando correlacionada com a classificação andrológica por pontos (CAP).

Avaliações que podem definir o potencial reprodutivo na espécie bovina como a CAP se mostrou uma forma de nortear aspectos da reprodução do macho.

Declaração de interesse

Os autores declaram não ter conflito de interesses.

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REFERENCES RÉFÉRENCES REFERENCIAS

- AHMAD, E.; AHMAD, N.; NASEER, Z.; ALEEM, M.; KHAN, M.S.; ASHIQ, M.; YOUNIS, M. Relationship of age to body weight, scrotal circumference, testicular ultrasonograms, and semen quality in Sahiwal bulls. *Tropical Animal Health Production*, v.43, p.159–164, 2011.
- ARRUDA RP, CELEGHINI ECC, ALONSO MA, CARVALHO HF, OLIVEIRA LZ, NASCIMENTO J, SILVA DF, AFFONSO FJ, LEMES KM, JAIMES JD. Métodos de avaliação da morfologia e função espermática: momento atual e desafios futuros. *Rev Bras Reprod Anim*, v.35, p.145-151, 2011.
- BOE-HANSEN, G.B.; FORTES, M.R.S.; SATAKE, N. Morphological defects, sperm DNA integrity, and protamination of bovine spermatozoa. *Andrology*, v6(4). p.1-7, 2018.
- BLOM, E. Ultrastructure of some characteristic sperm defects and a proposal for a new classification of the bull spermogram. *Nordisk veterinary medicine*, v.25, p.383-39, 1973.
- FONSECA, V.O.; SANTOS, N.R.; MALINSKI, P.R. Classificação andrológica de touros zebus (*Bos taurus indicus*) com base no perímetro escrotal e características morfo-físicas do sêmen. *Revista Brasileira de Reprodução Animal*, v.21, n.2, p.36-39, 1997.
- HALLAP, T.; HAARD, M.; JAAKMA, U.; LARSSON, B.; RODRIGUEZ-MARTINEZ, H. Variations in quality of frozen–thawed semen from Swedish Red and White AI sires at 1 and 4 years of age. *International Journal of Andrology*, v. 27, p. 166–171, 2004.
- HALLAP, T.; JAAKMA Ü.; RODRIGUES-MARTINEZ, H. Changes in Semen Quality in Estonian Holstein AI Bulls at 3, 5 and 7 years of Age. *Reproduction in Domestic Animals*, v.41, p.214-218, 2006.
- MANUAL PARA EXAME ANDROLÓGICO E AVALIAÇÃO DE SÊMEN ANIMAL/Colégio Brasileiro de Reprodução Animal, 3,ed, - Belo Horizonte: CBRA 2013.Disponível em: www.cbra.org.br.
- MAJIC- BALIC, I.; MILINKOVIC-TUR, S.; SAMARDZIJA, M.; VINCE, S. Effect of age and environmental factors on semen quality, glutathione peroxidase activity and oxidative parameters in simmental bulls. *Theriogenology*, v. 78(2), p. 423-431, 2012.
- MIRANDA NETO, T.; CASTILHO, E.F.; PINHO, R.O.; GUIMARÃES, S.E.F.; COSTA, E.P.; GUIMARÃES, J.D. Puberdade e maturidade sexual em touros jovens da raça Simental, criados sob regime extensivo em clima tropical. *Revista Brasileira de Zootecnia*, [S. L], v. 40, n. 9, p. 1917-1924, [s.l.], 2011.
- NTEMKA, A.; TSOUSIS, G.; BROZOS, C.; KIOSSIS, E.; BOSCOS, CM.; TSAKMAKIDIS, IA. Breed differences of bull frozen-thawed semen. *Reproduction in Domestic Animals*, December, v. 51(6). p, 945-952, 2016.
- OLIVEIRA, L.Z; OLIVEIRA, C.S; MONTEIRO, F.M; LIMA, V.F.M.H; LIMA, F.M; COSTA, M.Z. Efeito da idade sobre as principais características andrológicas de touros Brangus-lbagécriados extensivamente no estado do Mato Grosso do Sul – Brasil. *Acta Scientiae Veterinariae*, v.39(1), p.946, 2011.
- RONDA J.B.; RIBEIRO G.B.; JACOMINI, J.O.; QUINTAL, A.P.N.; VASCONCELOS A.B. Classificação Andrológica por pontos e características andrológicas na avaliação reprodutiva de touros da raça gir candidatos ao teste de progênie. *Ciência Animal Brasileira*, v.20, p.1-8, 2019.
- SALVADOR, D.F.; ANDRADE, V.J.; DIAS, J. C.; VALE FILHO, V.R.; NOGUEIRA, L. A. G. Associação entre o perfil andrológico e a congelamento de sêmen de touros da raça Nelore aos dois anos de idade, pré-selecionados pela classificação andrológica por pontos (CAP). *Arquivo Brasileiro de Medicina Veterinária e Zootecnia*, v. 60, p. 587-593, 2008.
- SILVA, A.R; FERRAUDO, A. S; PERECIN, D; LIMA, V.F.M.H. Efeito da idade do touro e do período de colheita de sêmen sobre as características físicas e morfológicas do sêmen de bovinos de raças europeias e zebuínas. *Revista Brasileira Zootecnia*, v.38, n.7, p.1218-1222, 2009.
- SILVA, A.E.D.F; UNANIAN, M.M; CORDEIRO, C.M.T; FREITAS, A.R; Relação da Circunferência Escrotal e Parâmetros da Qualidade do Sêmen em Touros da Raça Nelore, PO. *Revista Brasileira Zootecnia*, v. 31, n. 3, p. 1157-1165, 2002.
- SILVA, L.E.S.; HATAMOTO-ZERVOUDAKIS, L.K.; RAMOS, A.F.; ZERVOUDAKIS, J. T.; TSUNEDA, P.P.; DUARTE JÚNIOR, M. F.; WINGERT, F.M.; DE OLIVEIRA MORAES J. Sazonalidade e qualidade do sêmen fresco e criopreservado de touros Pantaneiro e Nelore. *Revista Brasileira de Ciência Veterinária*, v. 24, n. 1, p. 104-107, 2017.
- SILVA, S.V.; GUERRA, M.M.P. Efeitos da criopreservação sobre as células espermáticas e alternativas para redução das crioinjúrias. *Revista Brasileira Reprodução Animal*, Belo Horizonte, v. 35, n. 4, p. 370-384, 2011.
- SILVEIRA, T.S.; SIQUEIRA, J.B.; GUIMARÃES, S.E.F.; PAULA, T.A.R.; MIRANDA NETO, T.;

- GUIMARÃES, J.D. Maturação sexual e parâmetros reprodutivos em touros da raça Nelore criados em sistema extensivo. *Revista Brasileira de Zootecnia*, [S.L.], v. 39, n. 3, p. 503-511, mar. 2010. <http://dx.doi.org/10.1590/s1516-35982010000300008>.
20. STAUB, C.; L. JOHNSON, L. Review: Spermatogenesis in the bull. *Animal*, v. 12, p. 27–35, 2018.
21. SULLIVAN, J.J. *Sperm numbers required for optimum breeding efficiency in cattle*. In: TECHNICAL CONFERENCE ON ARTIFICIAL INSEMINATION AND REPRODUCTION, 3., Chicago, 1970. Proceedings... s.l., NAAB, 1970. p.36-43.
22. VALENTIM, R; ARRUDA, R.P.; ALENCAR, M.M.; BARNABE, R.C. Biometria testicular de touros nelore (*bos taurus indicus*) e touros cruzados nelore-europeu (*bos taurus indicus* x *bos taurus taurus*) aos 20 e 24 meses de idade. *Brazilian Journal of Veterinary Research and Animal Science*, v.39, n.3, p. 113-120, 2002.



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Influence of Psychiatric Disorders on Recovery and Prognosis from Gynecological Surgery

By Yndri Frota Farias Marques, Jessica de Medeiros Carpaneda, Lindson Mühlmann, Stephanie de Sousa, Maria Gabriella Cunha Batista, Pedro Santiago Madruga Ferreira, Francisco Rodrigues Nascimento Junior, Monia Bresolin & Nicole Xavier de Oliveira
University of Rio Verde

Summary- Introduction: The influence of psychiatric disorders on the recovery and prognosis of Gynecological surgery is a topic of clinical and scientific relevance. Patients with disorders psychiatric conditions, such as depression, anxiety, and post-traumatic stress disorder, can present additional challenges during the perioperative period. understand how these disorders affect the results of gynecological surgery is essential for a holistic and personalized approach to the care of these patients.

Purpose: The purpose of this study was to investigate the influence of psychiatric disorders on the recovery and prognosis of gynecological surgery, analyzing the relationship between these disorders and complications postoperative conditions, long-term results and quality of life of patients.

Keywords: "psychiatric disorders", "gynecological surgery", "recovery postoperative", "prognosis" and "quality of life"..

GJMR-G Classification: NLM: WM 140-190, WQ 200-212, WQ 215-270, WQ 300-340, WQ 500-505



INFLUENCE OF PSYCHIATRIC DISORDERS ON RECOVERY AND PROGNOSIS FROM GYNECOLOGICAL SURGERY

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Influence of Psychiatric Disorders on Recovery and Prognosis from Gynecological Surgery

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Purpose: The purpose of this study was to investigate the influence of psychiatric disorders on the recovery and prognosis of gynecological surgery, analyzing the relationship between these disorders and complications postoperative conditions, long-term results and quality of life of patients.

Methodology: A systematic review was carried out according to the PRISMA checklist (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The search comprehensive survey was conducted on major medical databases, including PubMed, Embase and Scopus, using the following MeSH terms (Medical Subject Headings) and their combinations: "psychiatric disorders", "gynecological surgery", "recovery postoperative", "prognosis" and "quality of life". Published studies were included over the last 10 years, with relevant data on the influence of psychiatric disorders in gynecological surgery.

Results: The analysis of the included studies revealed that the psychiatric disorders are associated with significant postoperative complications in gynecologic surgery, including higher rates of infection, wound dehiscence, pain chronic and recurrence of gynecological symptoms. Furthermore, these disorders can negatively influence the quality of life of patients in the long term, leading to greater dissatisfaction and functional limitations.

Discussion: The presence of psychiatric disorders in population of patients undergoing gynecological surgery requires an integrated approach among the surgical, psychiatric, and postoperative care teams. early identification and the proper management of psychiatric disorders are essential to optimize the post-operative recovery, minimize complications and improve functional outcomes and quality of life.

Conclusion: This review emphasizes the importance of an evaluation comprehensive assessment of patients' mental health before gynecological surgery, as well as the implementation of multidisciplinary strategies for perioperative care. A Identification and appropriate treatment of psychiatric disorders are crucial to improve surgical outcomes and promote a successful recovery. Furthermore, the integration of psychosocial interventions such as emotional support, therapy cognitive-behavioral and relaxation interventions, may play a role important in mitigating the negative effects of psychiatric disorders in surgery gynecological.

Keywords: "psychiatric disorders", "gynecological surgery", "recovery postoperative", "prognosis" and "quality of life".

I. INTRODUCTION

The approach to psychiatric disorders in medicine has always been a concern relevant, especially when it comes to the surgical context. Throughout history, the patients with psychiatric disorders were often stigmatized and neglected in relation to general medical care, including recovery postoperative period of gynecological surgeries. However, recent research has highlighted the crucial importance of considering psychiatric aspects during the perioperative period, recognizing the significant influence these disorders can have on outcomes procedures and the quality of life of patients.

Gynecological surgery involves complex procedures that require a period of adequate recovery to optimize results. During this period, factors psychosocial disorders, including psychiatric disorders,

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can directly influence the recovery and postoperative prognosis. Disorders such as anxiety, depression and post-traumatic stress disorder have been associated with surgical complications, length of stay, persistent chronic pain and reduced quality of life.

Understanding the relationship between psychiatric disorders and postoperative recovery is key to developing more effective therapeutic approaches and improving care of patients. Researches have demonstrated that the multidisciplinary approach, involving mental health teams and gynecological surgeons, can lead to better outcomes. A early identification of psychiatric disorders, proper assessment and interventions integrated approaches are essential to minimize negative effects on recovery and improve patients' quality of life.

In addition, it is important to consider the specific risk factors associated with psychiatric disorders in the postoperative period of gynecological surgeries. For example, patients with post-traumatic stress disorder may be more sensitive to pain, which may influence the need for adequate analgesia during recovery. Anxiety, in turn, can affect immune response and wound healing of wounds, resulting in slower recovery and potentially complications additional.

Considering these aspects, it is essential that health professionals adopt a holistic and integrated approach in the postoperative period of gynecological surgeries, recognizing the importance of proper assessment and management of disorders psychiatric. Collaborative care strategies involving multidisciplinary teams and effective communication between health professionals, are crucial to ensure a successful recovery and improve the patients' quality of life. In this literature review, we will explore the most recent studies on the influence of psychiatric disorders in recovery and postoperative prognosis of surgeries gynecological. In addition, we will make a correlation between psychiatric disorders and surgical outcomes, with the aim of providing a comprehensive and up-to-date view of the theme. Understanding these interactions is crucial to improving the clinical approach and ensure an effective and quality recovery for patients undergoing surgery gynecological.

a) *Goal*

The aim of this literature review is to analyze and summarize recent studies on the Influence of psychiatric disorders on recovery and prognosis from surgery gynecology, as well as exploring the effects of these disorders on the quality of life of patients. In addition, we intend to make a correlation between the results of the main articles found in order to provide a comprehensive view of this relationship.

II. METHODOLOGY

This literature review was performed using PubMed, Embase and Scopus. The search was conducted to identify studies that investigated the influence of psychiatric disorders in recovery and prognosis from gynecological surgery. They were the following MeSH terms (Medical Subject Headings) and their combinations were used: "psychiatric disorders", "gynecological surgery", "post-operative recovery", "prognosis" and "quality of life".

The search strategy was developed according to the relevant MeSH terms and adapted for each database. The inclusion criteria were established based on in the PRISMA checklist (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), ensuring the rigorous selection of relevant studies.

The inclusion criteria adopted were the following: Studies published in journals peer-reviewed scientific; studies that investigated the influence of mental disorders psychiatric in the recovery and prognosis of gynecological surgery; studies that involved patients undergoing gynecological surgeries; studies that evaluated outcomes related to postoperative recovery, such as surgical complications, pain, quality of life and prognosis; studies published in the last 10 years, considering the timeliness of the evidence.

The following types of studies were excluded: studies in a language other than English, Spanish or Portuguese; studies with exclusively male or mixed samples (as long as the female subsample could not be analyzed separately); studies that did not present relevant results for the outcomes of interest; studies of review, meta-analyses, letters to the editor and case reports.

The initial search was performed in each database using the search strategy preset. Results were exported and duplicates were removed. The selection of studies was carried out in two stages: initial screening of titles and abstracts, followed by complete evaluation of the selected texts. The studies were selected according to the inclusion and exclusion criteria previously established.

After selecting the studies, relevant data were extracted and organized into a narrative synthesis. The results of the selected studies were analyzed and correlated to provide a comprehensive view of the influence of disorders psychiatric patients in recovery and prognosis of gynecological surgery.

III. RESULTS

This systematic literature review selected a total of 15 articles the main ones articles selected in this review indicated a clear relationship between psychiatric disorders and postoperative recovery in gynecological surgeries. Several studies highlighted that the presence

of psychiatric disorders, such as anxiety and depression, is associated with an increased risk of postoperative complications, including infections, impaired wound healing and hospital readmissions.

In addition, psychiatric disorders have also been linked to an increase in pain postoperative period, need for more intense analgesia and prolonged duration of hospitalization. These factors can negatively impact the recovery of patients and their quality of life, leading to less satisfaction with surgical results.

The correlation between the results of the studies underscores the importance of an approach integrated into the care of patients undergoing gynecological surgeries. The identification early diagnosis of psychiatric disorders, multidisciplinary assessment and appropriate management by through psychotherapeutic, pharmacological or combined interventions can contribute for a more effective recovery and an improvement in the quality of life.

Part of the studies investigated the relationship between preoperative anxiety and complications postoperative care in patients undergoing hysterectomy. The results showed that patients with higher levels of anxiety had a higher incidence of complications such as wound infections and impaired healing. Furthermore, these patients reported greater intensity of postoperative pain and less satisfaction with the surgical results.

Other studies have explored the impact of depression in the postoperative period of surgeries gynecological. The results revealed that patients with preoperative depression had more likely to experience surgical complications, such as bleeding, in addition to have a slower recovery and longer hospital stay. These findings emphasize the importance of identifying and treating depression as an integral part of care perioperative period, aiming to improve the surgical outcomes and the quality of life of patients.

Regarding post-traumatic stress disorder (PTSD), some studies have investigated its association with chronic pain after gynecological surgeries. The results indicated that patients with previous PTSD had a higher incidence of persistent chronic pain, negatively impacting their long-term quality of life. Furthermore, these patients also reported greater need for analgesia and greater difficulty in fully recover from the surgical procedure.

With regard to bipolar mood disorder, studies have shown that patients with this psychiatric syndrome can present unique challenges in the postoperative period of surgeries gynecological. It was noticed that, the fluctuation of mood and episodes of mania or depression may interfere with adherence to treatment, wound healing and general recovery. Part of the research highlighted the importance of monitoring care of these patients during the perioperative period.

A large part of the studies indicated that patients with personality disorder borderline may be

more vulnerable to complications in the postoperative period of gynecological surgeries. Therefore, there is an association between borderline personality disorder and a higher risk of surgical complications, such as infections and wound dehiscence. In addition, these patients tend to have difficulties emotional and behavioral changes during recovery, which can negatively affect results and adherence to postoperative instructions.

The presence of generalized anxiety disorder has also been associated with unfavorable outcomes in the postoperative period of gynecological surgeries. It was identified that patients with GAD had a higher incidence of chronic pain, less satisfaction with surgery and a longer recovery compared to patients without GAD. These results suggest that adequate management of anxiety in these cases is fundamental to a more effective recovery.

Furthermore, the literature has shown that patients with eating disorders such as anorexia nervosa or bulimia nervosa, may present increased risks in the postoperative period of gynecological surgeries. There was a higher incidence of surgical complications, such as malnutrition, vitamin deficiencies and hydroelectrolytic disorders, in patients with eating disorders. Furthermore, these patients may face additional challenges related to adherence to the postoperative diet and body image management.

The correlation between the results of the studies suggests that the presence of disorders psychiatric tests before gynecological surgery may compromise recovery postoperative period in different ways. Physiological and psychosocial mechanisms are involved in this complex interaction. For example, anxiety and depression can trigger exacerbated inflammatory responses, negatively affecting healing wounds and increasing the risk of infections. In addition, psychiatric disorders can lead to an altered stress response, which can result in a greater degree of pain perception and difficulties in adapting to the postoperative period.

It is important to highlight that, although the association between psychiatric disorders and postoperative recovery in gynecological surgeries has been widely documented, the identification and management of these disorders are still clinical challenges. A multidisciplinary approach, involving mental health professionals, surgeons gynecologists and anesthesiology team, is fundamental to improve the surgical outcomes and patients' quality of life.

IV. CONCLUSION

It is concluded that there is a notorious influence of psychiatric disorders on recovery and prognosis of gynecological surgeries. The studies addressed a variety of disorders, including anxiety,

depression, post-traumatic stress disorder, bipolar mood disorder, borderline personality disorder, generalized anxiety and eating disorders.

Regarding anxiety, several studies have shown that patients with anxiety disorder have a higher incidence of surgical complications, postoperative pain intense and prolonged recovery. The presence of depression was also shown to be harmful, with a higher rate of hospital readmission, need for analgesia and impact negative impact on health-related quality of life. Post-traumatic stress disorder was associated with greater pain intensity and difficulty coping with stress. perioperative.

Patients with bipolar mood disorder presented unique challenges, including mood fluctuations that can interfere with wound healing and adherence to treatment. Borderline personality disorder was related to a higher incidence of surgical complications, whereas generalized anxiety disorder was associated with persistent chronic pain and less satisfaction with the surgery. The eating disorders were related to nutritional complications and difficulties in fulfilling the post-operative instructions.

In view of these results, it is crucial to adopt an integrated approach to the care of these patients, involving both the mental health team and the gynecological surgeons. Early identification of psychiatric disorders, comprehensive perioperative evaluation and proper management are essential to optimize surgical results and quality of care patients' lives. Furthermore, the development of clinical guidelines based on evidence and personalized therapeutic strategies are key to improving outcomes surgical outcomes in these populations.

However, it is important to emphasize that more research is needed in this area to deepen our understanding of the influence of psychiatric disorders on recovery and prognosis of gynecological surgeries. Additional studies may provide more specific information about the underlying mechanisms, better approaches therapies and strategies to prevent complications in patients with mental disorders psychiatric. The continuous search for scientific evidence will contribute to improve the care offered to these patients and promote more positive results in their surgical recovery days.

REFERENCES RÉFÉRENCES REFERENCIAS

- Laganà AS, La Rosa VL, Rapisarda AMC, et al. Anxiety and depression in patients with endometriosis: impact and management challenges. *Int J Womens Health*. 2017;9:323-330. Published 2017 May 16. doi:10.2147/IJWH.S119729.
- Maher C, Feiner B, Baessler K, Christmann-Schmid C, Haya N, Brown J. Surgery for women with apical vaginal prolapse. *Cochrane Database Syst Rev*. 2016; 10(10):CD012376. Published 2016 Oct 1. doi:10.1002/14651858.CD012376.
- Wiciński M, Malinowski B, Puk O, Socha M, Słupski M. Methylodopa as an inductor of postpartum depression and maternal blues: A review. *Biomed Pharmacother*. 2020; 127:110196. doi:10.1016/j.biopha.2020.110196
- Gommesen D, Nøhr E, Qvist N, Rasch V. Obstetric perineal tears, sexual function and dyspareunia among primiparous women 12 months postpartum: a prospective cohort study. *BMJ Open*. 2019;9(12):e032368. Published 2019 Dec 16. doi:10.1136/bmjopen-2019-032368.
- Klionsky DJ, Abdel-Aziz AK, Abdelfatah S, et al. Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition)1. *Autophagy*. 2021;17(1):1-382. doi:10.1080/15548627.2020.1797280.
- Aquila A, El Kherchi O, El Azmaoui N, et al. Body image dissatisfaction and lower self-esteem as major predictors of poor sleep quality in gynecological cancer patients after surgery: cross-sectional study. *BMC Womens Health*. 2021;21(1):229. Published 2021 Jun 3. doi:10.1186/s12905-021-01375-5.
- Aquila A, El Kherchi O, El Azmaoui N, et al. Predictors of mental health disorders in women with breast and gynecological cancer after radical surgery: A cross-sectional study. *Ann Med Surg (Lond)*. 2021;65:102278. Published 2021 Apr 10. doi:10.1016/j.amsu.2021.102278.
- Almassinokiani F, Khodaverdi S, Solaymani-Dodaran M, Akbari P, Pazouki A. Effects of Vitamin D on Endometriosis-Related Pain: A Double-Blind Clinical Trial. *MedSci Monitor* 2016;22:4960-4966. Published 2016 Dec 17. doi:10.12659/msm.901838.
- Zhao C, Grubbs A, Barber EL. Sleep and gynecological cancer outcomes: opportunities to improve quality of life and survival. *Int J Gynecol Cancer*. 2022;32(5):669-675. Published 2022 May 3. doi:10.1136/ijgc-2022-003404.
- Jundt K, Peschers U, Kantenich H. The investigation and treatment of female pelvic floor dysfunction. *Dtsch Arztebl Int*. 2015;112(33-34):564-574. doi:10.3238/arztebl.2015.0564.
- Mowat A, Maher D, Baessler K, Christmann-Schmid C, Haya N, Maher C. Surgery for women with posterior compartment prolapse. *Cochrane Database Syst Rev*. 2018;3(3):CD012975. Published 2018 Mar 5. doi:10.1002/14651858.CD012975.
- Frost AS, Kohn J, Wang K, Simpson K, Patzkowsky KE, Wu H. Postoperative Narcotic Use in Benign, Minimally-Invasive Gynecologic Surgery. *JSLs*. 2022;26(3):e2022.00041. doi:10.4293/JSLs.2022.00041.

13. Walker S, Hopman WM, Carley ME, Mann EG, VanDenKerkhof EG. Healthcare Use for Pain in Women Waiting for Gynecological Surgery. *Pain Res Management*. 2016;2016:1343568. doi:10.1155/2016/1343568
14. Lindau ST, Abramsohn EM, Baron SR, et al. Physical examination of the female cancer patient with sexual concerns: What oncologists and patients should expect from consultation with a specialist. *CA Cancer J Clin*. 2016;66(3):241-263. doi:10.3322/caac.21337.
15. Heo J, Chun M, Oh YT, Noh OK. Psychiatric comorbidities among endometrial cancer survivors in South Korea: a nationwide population-based, longitudinal study. *J Gynecol Oncol*. 2019;30(2):e15. doi:10.3802/jgo.2019.30.e15.
16. Wilson BR, Tringale KR, Hirshman BR, et al. Depression After Spinal Surgery: A Comparative Analysis of the California Outcomes Database. *Mayo Clin Proc*. 2017;92(1):88-97. doi:10.1016/j.mayocp.2016.06.030.
17. Jarlenski M, Bodnar LM, Kim JY, Donohue J, Krans EE, Bogen DL. Filled Prescriptions for Opioids After Vaginal Delivery. *Obstet Gynecol*. 2017;129(3):431-437. doi:10.1097/AOG.0000000000001868.
18. Wulfes N, von Fritschen U, Strunz C, Kröhl N, Scherer R, Kröger C. Cognitive-Emotional Aspects of Post-Traumatic Stress Disorder in the Context of Female Genital Mutilation. *Int J Environ Res Public Health*. 2022;19(9):4993. Published 2022 Apr 20. doi:10.3390/ijerph19094993.
19. Gazzuola Rocca L, Smith CY, Bobo WV, et al. Mental health conditions tested before bilateral oophorectomy: a population-based case-control study. *Menopause*. 2019;26(12):1395-1404. doi:10.1097/GME.0000000000001413.
20. Park HJ, Shim HS, Chung SY, Lee TH, Shim I. Soy-san reduces depressive-like behavior and proinflammatory cytokines in ovariectomized female rats. *BMC Complement Alternat Med*. 2014;14:34. Published 2014 Jan 21. doi:10.1186/1472-6882-14-34.



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Objectives: The present study aimed for isolation and identification of Corynebacterium species from ruminants. Antimicrobial sensitivity and detection for some virulence factors were done.

Methods: Two hundred and fifteen samples were gathered from various abscess locations in different species, inoculated on Baird Parker agar with 1% tween 80 then identified by biochemical tests. Antimicrobial sensitivity by MIC test was done with levofloxacin, Zinc oxide Nanoparticles, and Egyptian propolis extraction. Some isolates of Corynebacterium Pseudotuberculosis were identification of by 16Sr RNA PCR.

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Aya Soliman ^α, Ashraf Awaad Abd El-Tawab ^σ & Amany Omar Selim ^ρ

Abstract- Background: Ruminants suffer from suppurative infections caused by the corynebacteriaceae affecting animals and humans. They cause severe economic losses and a high culling rate with poor treatment efficacy.

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Results: Positive suspected isolates were 22 isolates for Corynebacterium (C.) pseudotuberculosis whilst 5 isolates for Trueperella (T.) pyogenes as they grow as small, dark grey opaque colonies. C. pseudotuberculosis was positive for esculin, urease, catalase, Ellman, and Beta-D-Fucosidase while T. pyogenes was negative for them. All isolates showed phenotypic virulence factors such as hemolysin, and lipase enzymes with lecithinase activity, and biofilm formation. Antimicrobial sensitivity showed sensitivity to levofloxacin and resistance to the other while showing anti-biofilm formation at the same concentration. 8 isolates of C. pseudotuberculosis were sequenced and recorded in the gene bank with accession number ON899860.

Conclusions: This study refers to the high pathogenicity of Corynebacterium spp. and their risky resistance to the antimicrobials which need modern investigations for treatment.

I. INTRODUCTION

Ruminants are suffered from numerous kinds of infections caused by the corynebacteriaceae family. Corynebacteriaceae belong to the Actinomycetales order with many nomenclatural updates in recent years (Markey et al., 2013; Algammal, 2016). This genus belongs to the CMNR group (Corynebacterium, Mycobacterium, Nocardia, and Rhodococcus), a heterogeneous group of pathogenic bacteria (Dworkin et al., 2006) characterized by diverse pyo- or granulomatous clinical infections that affect human and animals (Tauch and Sandbote, 2014; Thiago et al., 2021).

They are intracellular, cocco-bacilli, gram-positive microorganisms, non-capsulated, non-motile,

non-sporulating, and facultative anaerobes (Markey et al., 2013; Chandran et al., 2016; Juliana et al., 2019). Under the microscope, they are arranged in the form of palisades or similar to Chinese letters (Markey et al., 2013) or short coryneform rods (Park et al., 2022). Corynebacteria are pyogenic bacteria found externally on the skin, and mucous membranes and hidden internally in the intestinal tract of animals and humans (Bernard, 2012; Feßler and Schwarz, 2017; Park et al., 2022).

Some Corynebacterium species which have been detected in animals, documented to have zoonotic transmission as by the close contact with domestic or wild animals, i.e., during the occupational handling of animals, by animal bites, or by other means. Raw milk or dairy products without pasteurization often used for increase the risk of transmission of zoonotic pathogens as Corynebacteriaceae to humans (Langova et al., 2022) CLA has passive socio-economic effects that are chiefly defined in zoonosis, decrease the hide and market value, reproductive disorders and reduction of wool crop. It leads to dwindling in body weight, in wool and milk production even in the reproductive performance with elevation in the culling rate resulting to death of the infected animals with losses to the farm (Oreiby et al., 2014 and Burmayan and Brundage, 2021).

All ranchers in many countries suffer financial losses due to herd infection with Corynebacteria spp. as they cause numerous forms of pyogenic diseases (Dorella et al., 2006; Abd El Tawab et al., 2019) in addition to emaciation One of them is Corynebacterium (C.) pseudotuberculosis that is the main causative agent for Caseous lymphadenitis in Goat and sheep (Algammal, 2016; Thiago et al., 2021; Sting et al., 2022). 2- Mastitis in Cattle (Markey et al., 2013). 3- Ulcerative lymphangitis and ventral abscess in cattle (Markey et al., 2013; Vikas et al., 2017), Horses, and pigs (Markey et al., 2013). Also Corynebacteria spp. are reclassified into another genus including C. pyogenes as Trueperella (T.) pyogenes (Dworkin et al., 2006; Yassin et al., 2011; Magdalena et al., 2019). Conversely, T. pyogenes could cause a primary pathogen, infection usually follows a physical or microbial trauma that disseminates the organism (Rosenberg et al., 2014). T. pyogenes can cause numerous economically significant suppurative infections involving the skin and visceral organs including mastitis (Quinn et al., 2002; Unnerstad et al.,

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2009), pneumonia (Fulton et al., 2009), endometritis (Williams et al., 2005), liver abscess (Dore' et al., 2007), peritonitis and Pleurisy in sheep, goats, and cattle (Rosenberg et al., 2014; Abdallah, 2016). Many authors recorded the affected LNs illustrates marked enlargement with either thick creamy green pus with a central caseated core surrounded by dense fibrous capsule as (Torky et al., 2023).

This study aimed to discuss the conventional and the modern techniques to identify *Corynebacteria* spp. isolated from ruminants. Then further determination to some virulence factors and sensitivity to some antimicrobial agents would be done.

II. MATERIAL & AMP; METHODS

a) Ethical Approval

The research was carried out with the approval and in accordance with the guidelines of the local Ethics Committee at the Faculty of Veterinary Medicine, Benha University, Egypt. All the procedures in the study respect the ethical standards and the protocol was approved by the Ethics Committee with the code BUFVTM 12-10-22.

i. Samples Collections

One hundred ninety-seven swabs were taken from diseased farm animals (sheep, goat, cattle) and eighteen lesions from slaughtered one from different farms and slaughtered houses within Gharbiya & Menoufia Governorates from 8, 2021 till 4, 2022 (Table 1) (Fig. 2). Samples were taken as biological swabs from swollen lymph nodes or any superficial abscess and the whole affected lymph nodes from a slaughtered animal. The extraneous surface of the strucked lymph node was cleaned, disinfected by povidone-iodine 7.5% then incised by a sterile blade. After that, the samples were taken from the inner surface and the pyogenic membrane after a gentle squeeze and were taken in a tube with brain heart infusion broth in an ice tank as quickly as possible.

Bacteriological examination according to (Markey et al., 2013, Zasada and Mosiej, 2018).

All collected samples were streaked in triplicate for each sample into plates of brain heart infusion (BHI) agar (Hi-media), 5% fresh heparinized sheep blood agar, and Baird Parker agar. All plates were supplemented by tween 80 by 1% for Lipophilic corynebacteria in addition of utilization of *C. pseudotuberculosis* (ATCC® 19410™) as control positive, then incubated for 24-48 h at 37°C. Suspected colonies were tested for color, motility, consistency, catalase, oxidase, and stained Gram's stain (EDM) then all colonies with Gram-positive forming cocco-bacilli, negative for oxidase and nitrate, and non-motile in semi-solid agar were selected, then tested for traditional biochemical tests, and VITEK test.

ii. Identification of *Corynebacterium* Species

Identification by vitek 2 compact system (biomerieux, 2006).

A sterile swab was used to transfer many colonies of fresh pure colonies to 3ml sterile saline in a clean plastic test tube. The turbidity should be calibrated by a turbidity meter called VITEK® 2 DensiCHEK™ then insert the ANC card in suspension in less than half an hour. The test tube with the inoculated card was loaded in a vacuum chamber station then the vacuum was applied and the micro-organism suspension was forced into micro-channels. The final data were obtained and automatically printed within 24 hrs.

Identification of some isolates of C. Pseudotuberculosis by PCR acc. to Pacheco et al., 2007).

By using Master Mix and Oligonucleotide primers sequences from Metabion (Germany). forward (ACCGCACTTTAGTGTGTGTG), reverse (TCTCTACG CCGATCTTGAT) at 816 bp with Cycling conditions: Primary denaturation (94°C 5min) 2nd denaturation (94°C 30sec), Annealing (58°C 40sec), Extension (72°C 50sec), Final extension (72°C 10 min) for 35cycles.

For sequencing reactions, 16Sr RNA PCR product of sample no.1 (540 bp length) was purified using QIAquick Gel Extraction Kit Protocol: (Qiagen Inc. Valencia CA and PCR Clean up sequenced in the forward and reverse directions on an Applied Biosystems 3130 automated DNA Sequencer (ABI, 3130, USA). Using a ready reaction Bigdye Terminator V3.1 cycle sequencing kit. (Perkin-Elmer/ Applied Biosystems, Foster City, CA), with Cat. No. 4336817. according to (Sanger et al. 1977) and the instruction of the manufacturer by Thermo Fisher Scientific, Schwerte, Germany. The sequences were edited and aligned using BioEdit version v7.0.9. Software A BLAST® analysis (Basic Local Alignment Search Tool) (Altschul et al., 1990) was initially performed to establish sequence identity to GenBank accessions.

Detection of some phenotypic virulence factors:

b) Biofilm Formation

According to (Hassan et al., 2011)

All samples were tested by the tube and the congo red agar method for the detection of biofilm formation. Assessment of biofilm-forming quantitatively by using tube method and according to results lay down by. Bacteria are classified as weak, moderate, and strong biofilm producers. The strong Biofilm formation was detected using the CRA method, color of bacterial colonies was checked as black colonies with dry crystalline consistency indicating a positive result, weak slime producers usually remained pink. A darkening of the colonies with the absence of a dry crystalline colonial morphology indicated an indeterminate result. The test was repeated three times with the reference

strain *Edwardsiella tarda* MW362142 as a positive control for biofilm formation (Abd El-Tawab et al., 2021).

Phenotypic virulence factors of Corynebacteria isolated according to (Yang and Fang, 2003, Markey et al., 2013) The hemolytic; amylase; proteolytic (caseinase); lipolytic and lecithinase activities for *Corynebacterium* Spp. isolated and CAMP test detection of the synergistic or the reverse hemolytic activity with *Staphylococcus aureus* ATCC® 6538.

c) *Antimicrobial sensitivity test by Determination of minimum inhibitory*

Concentration (MIC) method according to CLSI (2006) and The European Committee on Antimicrobial Susceptibility Testing (2019). ZnO-NPs and Egyptian propolis were obtained from the animal health research institute, El Doki, Egypt, and their concentrations were according to (Hegazi and Abd El Hady, 2002). ZnO-NPs was with a particle size of 371nm with 1.137OD wave length in nm and its cytotoxicity was IC₅₀ 100ug/ml on monkey kidney cell line assessed by SRB assay according to (Skehan et al., 1990). The MICs of antibiotics, Egyptian propolis, and ZnO-NPs against *Corynebacterium* isolates were determined by the broth micro-dilution method. The concentrations used in the MIC test were as follows; ZnO-NPs (100 to 10 ug/ml); Egyptian propolis (10mg/ml to 1,25mg/ml), Oxytetracycline (4 to 16ug/ml), penicillin G (25 to 8ug), levofloxacin (25- 8ug/ml).

The MIC of selected Antibiotics was defined as the lowest concentration of antibiotic that inhibits bacterial growth and no visible growth is observed as compared with both a positive control (culture broth containing bacteria only that should appear turbid) and a negative control (culture broth without bacteria that should remain clear). In addition, the half maximal inhibitory concentration (IC₅₀) of ZnO-NPs against *Corynebacterium* isolates was determined. The Experiment was performed in triplicate and quantitative assessment of biofilm formation on conge red agar.

III. RESULTS

a) *Detection of Corynebacterium Species*

Positive suspected corynebacterium species isolated were 27 from 215 samples with specific greenish colored pus (fig.3) as 19 out of 144 sheep, 5 out of 61 goats, and 3 out of 10 cattle by 12.56% of the total number.

Distribution of Corynebacterium species isolated from abscess locations as table (2).

Out of 19 strucked sheep, the distribution of *C. pseudotuberculosis* was 9 males (5 of them were old and 4 were from dead animals), 1 parotid lymph node (11.1%), 1 fatty tail (11.1%) and 3 pre-scapular lymph node (33.3%) and 10 females (5 of them were old and 5 were young) as 2 sub-mandibular lymph nodes (20%), 2 parotid lymph node (20%) and 2 pre-scapular lymph

node (20%), 1 retro-pharyngeal lymph node (10%), 2 pre-femoral lymph node (20%) and 1 in the fatty tail (10%). However, the distribution of *C. pseudotuberculosis* in 3 strucked goats, was 2 males (1 young and the other was old) by 1 in pre-femoral lymph node (50%) and 1 in sub-mandibular lymph nodes (50%) whilst 1 young female by 1 retro-pharyngeal lymph node (100%). We found *T. pyogenes* in cattle in 3 cows with abdominal abscess (100%) while we found it in two lactating does as non-specific infection in pre-scapular lymph node (100%). These results revealed many points: Sheep was the most affected species mainly after manual shearing by scissors in fixed breeding. The main affected L.N in sheep was in the head region- due to fighting- despite it having fewer affections in goats and being absent in cattle.

b) *Cultural and Biochemical Characteristics of Isolates*

All *Corynebacterium* species isolated were Gram-positive non (sporulated–capsulated–motile) cocco-bacilli to short-chain bacilli which can appear in pairs or single arrangements. The most characteristic club shape was in form of acute angles or Chinese-like appearance as in fig. 4. After 48 h of incubation, their colonies appear as minute, white, smooth, dry colonies on BHI agar surrounded by a thin zone of β hemolysis on 5% fresh heparinized sheep blood agar. The colonies were waxy and splashing with flame with hard collecting as they were swaying on the agar surface. On Egg-yolk Tellurite or Baird Parker agar, the colonies were small, dark grey, and opaque in appearance after 24-48 h (fig. 5). All tested isolates were non-motile, negative for oxidase, and nitrate reduction tests whilst 22 isolates were positive for Urease and catalase tests and 5 isolates were negative for them.

Identification of Corynebacterium species by vitek 2 compact system. As in fig. 6 & 7 *C. pseudotuberculosis* was positive for esculin, urease, catalase, Ellman and Beta-D-Fucosidase whilst *T. pyogenes* was negative for all of them.

i. *The result of 16Sr RNA of C. pseudotuberculosis*

Out of identified *C. pseudotuberculosis*, 8 selected isolates were tested for 16Sr RNA and all were positive at 816 bp as in (fig. 8). The sequence of 16Sr RNA has accession number ON899860 partial sequence and its length 539 BP (780 BP), has similarity with 31 accession number in gene bank with 99.49% as in (fig. 9).

Fig. 8: Agarose gel electrophoresis of PCR for amplification products of The 16S ribosomal RNA gene (16S rRNA) for 8 *C. pseudotuberculosis* isolates. All Lanes show positive amplification of 16S rRNA gene at 816 bp. Lane L: DNA ladder at 100-1000bp. N.: Negative control (sterile DNase/ RNase free DEPC water). P.: Positive control (*C. pseudotuberculosis* (ATCC® 19410 TM).

ii. *The Results of Phenotypic Virulence Factors*

All isolates had hemolytic, lipolytic, proteolytic (caseinase), and Lecithinase activities. The CAMP test justifies that *C. pseudotuberculosis* inhibits the staphylococcal beta-hemolysin reaction (reverse CAMP test) whilst *T. pyogenes* enhances it (pos. CAMP-like reaction). Addition to 90% of isolates produces biofilm as shown in Tables (3, 4) and fig.10 & amp;11.

c) *The Result of Antimicrobial Sensitivity Tests*

All isolates were resistant to all tested kinds of anti-microbial except levofloxacin at 8ug/ml. But nano zinc oxide 100ug/ml and propolis extraction at 10mg/ml can eradicate the biofilm formation of *C. pseudotuberculosis* (fig 12.).

IV. DISCUSSION

The pyogenic bacteria are ferocious and annoying bacteria for animals and ranchers. Not also it affects animal health, but also causes financial losses for the ranchers. One of them is *C. pseudotuberculosis* which causes Caseous lymphadenitis (CLA) in sheep and goats. CLA is a zoonotic, contagious, and chronic bacterial disease which causes granulomas in lymph nodes (superficial and visceral) extending to several internal organs [Banke et al., 2021; Burmayan and Brundage, 2021; Santos et al., 2021].

Another one is *T. pyogenes* which causes various suppurative infections in domestic animals as mastitis, abscesses, pneumonia, and lymphadenitis as in (Ribeiro et al., 2015; Rogovskyy et al., 2018). In this research, the prevalence of *C. pseudotuberculosis* isolated from alive and dead animals was in a congenial ratio with the result reported by (Oreiby et al., 2015; Abd El Tawab et al., 2019, and Torky et al., 2023). Conversely, it is a minor ratio compared with the one reported by (Al-Gaabary et al., 2009). In in-contrast that it is a major ratio reported in (Al-Gaabary et al., 2013;

Al-Gaabary et al., 2015). The prevalence of *T. pyogenes* was reported in cattle and goats as reported in (Abdallah, 2016; Rogovskyy et al., 2018) with different ratios. Accurate identification of CLA relies on PCR detection methods such as 16S rRNA gene as reported in Public Health England (2014) and Algammal, 2016 that was present in all tested isolates. The molecular genetic sequence analysis of 16S rRNA gene has facilitated a much tighter circumscription of the genus *Corynebacterium*. The availability of comparative 16S rRNA gene sequence improved phenotypic data has resulted in much improved and more reliable species identification Public Health England (2014).

The result of MIC test showed the sensitive of *C. pseudotuberculosis* to levafloxacin and resistance to penicilline which agree with Torky et al., 2023 and dis agree with Markey et al., 2013 recorded its sensitivity to penicillin. The propolis and ZnO-NPs exhibited resistance from tested *C. pseudotuberculosis* but they

have a good anti-biofilm activity against it as reported by (Santos et al., 2021 and Abdelghafar et al., 2022). That may be due to their unreasonable use of them during the rearing period. Subsequently, it was a necessity to detection of their ability for biofilm formation as there is a close connection between them. From this study, most infections occur in fixed and mixed breeding, especially after the shearing season as reported by (Oreiby et al., 2014). The sensitivity and specificity for biofilm formation were much more accurate by the tube method than CRA which was confirmed by (Hassan et al., 2011).

V. CONCLUSION

Corynebacteria cause obstinate infections with unidentified rules for treatment. CLA leads to a dwindling in body weight, wool, and milk production even in the reproductive performance with an elevation in the culling rate resulting in losses to the farm. Further modern researches should be done to know how to handle this microorganism.

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Conflict of Interest

The authors declared no conflict of interest.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Abd El Tawab, A. A., Rizk, A. M., Afifi, S. E., & amp; Mohamed, S. R. (2019). *Corynebacterium Pseudotube-rculosis* infection in small ruminant and molecular study of virulence and resistance genes in Beni-Suef governorate. *Benha Veterinary Medical Journal*. 37: 122-127.
2. Abd El-Tawab, A. A., Rizk, A. M., Selim, A. O., & amp; Elwakil, R. I. (2021). Biofilm of *Edwardsiella tarda* isolated from fresh water fishes and its role in the bacterial Virulence. *Benha Veterinary Medical Journal* 40,1-5.
3. Abdallah, S. N. M. (2016). Phenotypic and genotypic characteristics and epidemiological relation of *Trueperella pyogenes* isolated from various origins. PHD Thesis, Justus-Liebig-Universität Gießen, Germany.
4. Abdelghafar, A., Yousef, N., & amp; Askoura, M. (2022). Zinc oxide nanoparticles reduce biofilm formation, synergize antibiotics action and attenuate *Staphylococcus aureus* virulence in host; an important message to clinicians. *BMC Microbiology*, 22:244. <https://doi.org/10.1186/s12866-022-02658z>.
5. Al-Gaabary, M. H., Hegazy, Y. M., & amp; Gerges, D. Y. R. (2015). Epidemiological and preventive

- studies on caseous lymphadenitis in sheep and goats. Master Thesis in infectious disease, faculty of veterinary medicine, Kafer El-Shiekh University.
6. Al-Gaabary, M. H., Osman, S. A., & Oreiby, A. F. H. (2009). Studies on caseous lymphadenitis in sheep and goats. Master thesis in vet. Medical science (infectious disease), faculty of veterinary medicine, Kafer El-Shiekh University.
 7. Al-Gaabary, M. H., Osman, S. A., Ghanem, Y. M., & Oreiby, A. F. H. (2013). Studies on *Corynebacterium* infection in Ruminants. PhD thesis in vet. Medical science (infectious disease), faculty of veterinary medicine, Kafer El-Shiekh University.
 8. Algammal, M. A. (2016). Molecular Characterization and Antibiotic Susceptibility of *Corynebacterium pseudotuberculosis* Isolated from Sheep and Goats Suffering from Caseous Lymphadenitis. *Zagazig Veterinary Journal*; 44: 1-8.
 9. Altschul, S. F., Gish, W., Miller, W., Myers, E. W., & Lipman, D. J. (1990): Basic Local Alignment Search Tool. *J. Mol. Biol.* 215, 403-410.
 10. Banke, I. S., Abdul Kadir, A., Firdaus, F., Jesse, A., Ramanoon, S. Z., Abdul Basit, M., & Zakaria, M. Z. A. (2021). Antibiofilm Activity of Oxytetracycline Loaded
 11. Calcium Carbonate Aragonite Loaded Nanoparticle against *Corynebacterium pseudotuberculosis*. *International Journal of Pharmacology*, 17: 73-83.
 12. Bernard, K. (2012). The Genus *Corynebacterium* and Other Medically Relevant Coryneform-Like Bacteria. *J. Clin. Microbiol.* 50: 3152-3158.
 13. Biomeriux VITEK-2 Compact ref Manual– Ref-414532. 2006. National Committee for Clinical Laboratory Standards. Methods for dilution antimicrobial susceptibility tests for bacteria that grow aerobically. Approved Standard M7 A5. Normal committee for clinical laboratory standards. Wayne, Pa.
 14. Burmayan, A., & Brundage, C. M. (2021). Caseous lymphadenitis outbreak in a small ruminant herd. *Open Vet. J.* 11(4): 530–534.
 15. Chandran, F. L., Puthukkichal, D. R., Suman, E., & Mangalore, S. K. (2016). Diphtheroids—important nosocomial pathogens. *J. Clin. Diagn. Res.* 10: 28–31.
 16. Clinical and Laboratory Standards Institute (CLSI) (2006). Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria that Grow Aerobically, 7th ed.; *Approv. Stand. M7-A7*; CLSI: Wayne, PA, USA.; Volume 26, p. 2.35.
 17. Dore´, E., Fecteau, G., He´lie, P., & Francoz, D. (2007). Liver abscesses in Holstein dairy cattle: 18 cases (1992–2003). *J. Vet. Intern. Med.* 21: 853–856.
 18. Dorella, F. A., Pacheco, L. G. C., Oliveira, S. C., Miyoshi, A., & Azevedo, V. (2006). *Corynebacterium pseudotuberculosis*: microbiology, biochemical properties, pathogenesis and molecular studies of virulence. *Vet. Res.* 37: 201–218.
 19. Dworkin, M., (Editor-in-Chief), Falkw, S., Rosenberg, E., Schleifer, K., & Stackebrandt, E. (Eds.). (2006). *The Prokaryotes & Archaea. Bacteria: Firmicutes, Actinomycetes & Third Edition. Volume 3, Chapters 1.1.15, 16.*
 20. Feßler, A. T., & Schwarz, S. (2017). Antimicrobial resistance in *Corynebacterium* spp., *Arcanobacterium* spp. and *Trueperella pyogenes*. *Microbiol Spectrum.* 5: 395-408.
 21. Fulton, R. W., Blood, K. S., Panciera, R. J., Payton, M. E., Ridpath, J. F., Confer, A. W., Saliki, J. T., Burge, L. T., Welsh, R. D., Johnson. B. J., & Rck, A. (2009). Lung pathology and infectious agents in fatal feedlot pneumonias and relationship with mortality, disease onset and treatments. *J. Vet. Diagn. Invest.* 21: 464–477.
 22. Hassan, A., Usman, J., Kaleem, F., Omair, M., Kkalid, A., & Iqbal, M. (2011).
 23. Evaluation of different detection methods of biofilm formation in the clinical isolates. *Braz. J. Infect. Dis.* 15: 305-311.
 24. Hegazia, A. G., & Abd El Hady, F. K. (2002). Egyptian Propolis: 3. Antioxidant, Antimicrobial Activities and Chemical Composition of Propolis from Reclaimed.
 25. Lands 0939D5075/2002/0300D0395 \$ 06.00 Verlag der Zeitschrift fur Naturforschung, Tubingen PG(395 - 402-) www.znaturforsch.com.
 26. Juliana, N. R., Cassius, S., Yuri, V. F., Eliane, C., João, F. C. V., Paulo, V. P. B., Sérgio, H. S., Lilian, M., Raphael, H. J., Ana Luíza, M. G., & Verônica, V. V. (2019). Blood stream and catheter-related infections due to different clones of multidrug-resistant and biofilm producer *Corynebacterium striatum*. *B. M. C. Infect. Dis.* 19:672.
 27. Langova, D., Slana, I., Okunkova, J., Moravkova, M., Florianova, M. & Markova, J. (2022). First Evidence of the Presence of the Causative Agent of Caseous.
 28. Lymphadenitis—*Corynebacterium pseudotuberculosis* in Dairy Products Produced from the Milk of Small Ruminants. *Pathogens*, 11, 1425. <https://doi.org/10.3390/pathogens11121425>.
 29. Magdalena, R., Ewelina, K., Dorota, C., Magdalena, K., Ilona, S., & Małgorzata, G. (2019). Pathogenicity and Virulence of *Trueperella pyogenes*. *Int. J. Mol. Sci.* 20:2737.
 30. Markey, B., Leonard, F., Archambault, M., Cullinane, A., & Maguire, D. (2013). *Clinical veterinary microbiology second Ed. MOSBYELSEVIER. Chapter 6:79-102, Chapter 9: 135 - 145, Chapter 10: 147-160.*
 31. Oreiby, A. F., Hegazy, Y. M., Al-Gaabary, M. H., Osman, S. A., Marzok, M. A., & Abushhiwaa,

- M. (2015). Studies on Clinical Identification, Elisa, Bacteriological Isolation, PCR and X-Ray Radiography for Diagnosis of Ovine Caseous Lymphadenitis. *Journal of Animal and Veterinary Advances*. 14(9): 250-253.
32. Oreiby, A. F., Hegazy, Y. M., Osman, S. A., Ghanem, Y. M., & Al-Gaabary, M. H. (2014). Caseous lymphadenitis in small ruminants in Egypt. Clinical, epidemiological and prophylactic aspects. 2014. *Tierärztliche praxis grobtiere* 5/ IP: 37.106.242.45.
 33. Pacheco, L. G. C., Pena, R. R., Castro, T. L. P., Dorella, F. A., Bahia, R. C., Carminati, R., Frota, M. N. L., Oliveira, S. C., Meyer, R., Alves, F. S. F., Miyoshi, A., & Azevedo, V. (2007). Multiplex PCR assay for identification of *Corynebacterium Pseudotuberculosis* from pure cultures and for rapid detection of this pathogen in clinical samples. *Journal of medical microbiology*, 56, 480–486.
 34. Park, S., Shin, H., Kim, S., Lee, T., Lee, H., Nam, K., Yoon, W., Kim, H., Seo, Y., Won, Y., & Kwon, H. (2022). Distribution of *Corynebacterium Species* and
 35. Comparative Results of Diagnostic Methods for Identifying *Corynebacterium* in Experimental Mice in Korea. *Vet Sci*. Jul; 9(7): 328. doi:10.3390/vetsci 9070328.
 36. Public Health England. (2014). Identification of *Corynebacterium* species. UK Standards for Microbiology Investigations. ID 2 Issue4.1. <https://www.gov.uk/ukstandards-for-microbiology-investigations-smi-quality-and-consistency-in-clinical-laboratories>.
 37. Quinn, A. K., Vermunt, J. J., & Twiss, D. P. (2002). *Arcanobacterium pyogenes* mastitis in a 18-month-old heifer. *N. Z. Vet. J.* 50: 167–168.
 38. Ribeiro, M. G., Riseti, R. M., Bolaños, C. A. D., Caffaro, K. A., Morais, A. C. B., Lara, G. H. B., Zamproga, T. O., Paes, A. C., Listoni, F. J. P., & Franco, M. M. J. (2015). *Trueperella pyogenes* multispecies infections in domestic animals: a retrospective study of 144 cases (2002 to 2012). *Vet. Q.* 35:82–87.
 39. Rogovskyy, A. S., Lawhon, S., Kuczmanski, K., Gillism, D. C., Wu, J., Hurley, H., Rogovska, Y. V., Konganti, K., Yang, C., & Duncan, K. (2018). Phenotypic and genotypic characteristics of *Trueperella pyogenes* isolated from ruminants. *J. Vet. Diagn. Invest.* 30(3): 348–353.
 40. Rosenberg, E. (Editor-in-Chief), DeLong, E. F., Lor, S., Stackebrandt, E., & Thompson, F. (Eds.) (2014). *The Prokaryotes & Actinobacteria & Fourth Edition*. Chapter 12: 239-277.
 41. Sanger, F., Nicklen, S., & Coulson, A. R. (1977). DNA sequencing with chain-terminating inhibitors & Proc. Natl. Acad. Sci. U.S.A. 74 (12), 5463–5467.
 42. Santos, L. M., Rodrigues, D. M., Kalil, M. A., Azevedo, V., Meyer, R., Umsza-Guez, M. A., Machado, B. A., Seyffert, N., & Portela, R. W. (2021). Activity of Ethanolic and Supercritical Propolis Extracts in *Corynebacterium pseudotuberculosis* and its associated biofilm. *Front. Vet. Sci.* 8:700030.
 43. Skehan, P., Storeng, R., Scudiero, D., Monks, A., McMahon, J., & Vistica, D. (1990). New colorimetric cytotoxicity assay for anticancer-drug screening. *J. Natl. Cancer Inst.* 82(13):1107-1112.
 44. Sting, R., Geiger, C., Rietschel, W., Blazey, B., Schwabe, I., Rau, J., & Schneider-Bühl, L. (2022). *Corynebacterium pseudotuberculosis* Infections in Alpacas (*Vicugna pacos*). *Animals (Basel)*. Jul; 12(13): 1612. doi:10.3390/ani 12131612.
 45. Tauch, A., & Sandbote, J. (2014). The family *Corynebacteriaceae*. In *The prokaryotes*: Springer Berlin Heidelberg. 239-277.
 46. The European Committee on Antimicrobial Susceptibility Testing. Breakpoint tables for interpretation of MICs and zone diameters. Version 4.0. 2014. Available online: http://www.eucast.org/fileadmin/src/media/PDFs/EUCAT_files/Breakpoint_tables/Breakpoint_table_v_4.0.pdf (accessed on 16 October 2019).
 47. Thiago, Z., Dayana, R., Vasco, A. C. A., Gustavo, H. B. L., Rodrigo, G. M., Rodrigo, C., Amanda, K. S., Geraldo, J., Fernando, J. P. L., Lorrayne de Souza, A. M., Aristeu, V., Fábio, V. R. P., André da Rocha, M., Carolina, A. R., Beatriz, O., & Márcio, G. R. (2021). Bacteriological, cytological and molecular investigation of *Corynebacterium pseudotuberculosis*, mycobacteria and other bacteria in caseous lymphadenitis and healthy lymph nodes of slaughtered sheep. *Brazilian Journal of Microbiology*. 52: 431–438.
 48. Torkey, H. A., Saad, H. M., Khaliel, S.A., Kassih, A.T., Sabatier, J. M., Batiha, G.E.-S.; Hetta, H. F., Elghazaly, E.M. & De Waard, M. (2023). Isolation and Molecular Characterization of *Corynebacterium pseudotuberculosis*: Association with Proinflammatory Cytokines in Caseous Lymphadenitis Pyogranulomas. *Animals* 13, 296. <https://doi.org/10.3390/ani13020296>.
 49. Unnerstad, H. E., Lindberg, A., Waller, K. P., Ekman, T., Artursson, K., Nilsson-Ost, M., & Bengtsson, B. (2009). Microbial aetiology of acute clinical mastitis and agent specific risk factors. *Vet. Microbiol.* 137: 90–97.
 50. Vikas, J., Harshit, V., & Shriya, R. (2017). Ulcerative Lymphangitis in Sahiwal cattle. *Intas. Poli. Vet.* 18: 83-84.
 51. Williams, E. J., Fischer, D. P., Pfeiffer, D. U., England, G. C. W., Noakes, D. E., Dobson, H., & Sheldon, I. M. (2005). Clinical evaluation of

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Diabetic Remission in a Mixed Breed Feline - Report of Case

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Abstract- Diabetes Mellitus (DM) is a syndrome characterized by persistent hyperglycemia due to the lack of insulin or the incapacity of exerting its metabolic effects. Along with hyperthyroidism, it is one of the most common endocrine diseases in felines, with obese cats having 3.9 x more chance of developing DM comparing to a cat in an ideal body condition score. This report describes the case of a feline, female, 5- year-old, spayed, mixed breed, with a history of obesity (prior body condition score 8/9), presenting weight loss and polyphagy. The history of previous obesity associated with the clinical manifestations suggested the possibility of DM, which was confirmed due to hyperglycemia, glycosuria and the increase of fructosamine values. It was instituted therapy using insulin Glargine, supporting diet for obesity and environmental enrichment, with remission of DM.

Keywords: *diabetes mellitus, felines, obesity, insulin resistance.*

GJMR-G Classification: *NLM Code: WK 810*



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Diabetic Remission in a Mixed Breed Feline – Report of Case

Remissão Diabética em um Felino Sem Raça Definida- Relato DeCaso

Bruna Invernizzi Zauza ^α & Antonella Mattei ^ο

Resumo- O Diabetes Mellitus (DM) é uma síndrome que se caracteriza pela hiperglicemia persistente decorrente da falta de insulina ou da incapacidade de exercer seus efeitos metabólicos. Junto com o hipertireoidismo, é uma das doenças endócrinas mais comuns em felinos, sendo que os gatos obesos têm 3.9 x mais chance de desenvolver DM do que um gato em escore de condição corporal ideal. No presente relato, o caso descrito é de uma felina, fêmea, de 5 anos de idade, castrada, sem raça definida, com histórico de obesidade (escore de condição corporal prévio 8/9), apresentando perda de peso e polifagia. O histórico de obesidade prévia associado as manifestações clínicas sugeriram a possibilidade de DM, confirmado diante da hiperglicemia, glicosúria e elevação dos valores de frutossamina. Foi instituído terapia com insulina Glargina, dieta coadjuvante para obesidade e enriquecimento ambiental, ocorrendo remissão do DM.

Palavras-chave: diabetes mellitus, felinos, obesidade, resistência insulínica.

Abstract- Diabetes Mellitus (DM) is a syndrome characterized by persistent hyperglycemia due to the lack of insulin or the incapacity of exerting its metabolic effects. Along with hyperthyroidism, it is one of the most common endocrine diseases in felines, with obese cats having 3.9 x more chance of developing DM comparing to a cat in an ideal body condition score. This report describes the case of a feline, female, 5- year-old, spayed, mixed breed, with a history of obesity (prior body condition score 8/9), presenting weight loss and polyphagy. The history of previous obesity associated with the clinical manifestations suggested the possibility of DM, which was confirmed due to hyperglycemia, glycosuria and the increase of fructosamine values. It was instituted therapy using insulin Glargine, supporting diet for obesity and environmental enrichment, with remission of DM.

Keywords: diabetes mellitus, felines, obesity, insulin resistance.

1. INTRODUÇÃO

O Diabetes Mellitus (DM) é uma condição aonde ocorre diminuição da secreção de insulina pelas células beta pancreáticas, redução da sensibilidade da insulina nos tecidos, ou seja, resistência insulínica, ou ambas as situações. (JANUÁRIO, 2021) Junto com o hipertireoidismo, é uma

das doenças endócrinas mais comuns em felinos. Sabe-se que a maioria dos felinos diagnosticados são mais velhos, apresentando, em média, 10 anos de idade. Os machos estatisticamente são mais acometidos do que as fêmeas (SENE, 2020) e, de acordo com Januário, (2021) gatos obesos apresentam 3.9 vezes mais chance de desenvolver DM do que um gato em escore de condição corporal ideal.

Na maioria dos felinos a doença se assemelha ao DM tipo 2, sendo causada por resistência a ação da insulina. Sedentarismo, obesidade e depósito de substância amiloide nas ilhotas pancreáticas são as principais causas de resistência insulínica em gatos. (COUTO, 2003).

As manifestações clínicas mais comuns são poliúria, polidipsia, polifagia e perda de peso. (MOONEY; PETERSON, 2015). Cerca de 10% dos felinos podem apresentar sintomas de neuropatia diabética, percebidos por limitação na capacidade de saltar, fraqueza dos membros posteriores e postura plantigrada (VAROLI, 2021)

O diagnóstico é obtido através da realização de uma anamnese minuciosa associado a presença de manifestações clínicas, hiperglicemia persistente e glicosúria. Para ocorrer glicosúria, a glicemia deve ultrapassar o limiar de reabsorção renal de glicose, que na espécie felina, é em torno de 250 a 300 mg/dL. (JANUÁRIO, 2021). Como forma de diferenciar a hiperglicemia por estresse da hiperglicemia por DM, pode-se realizar a dosagem da frutossamina, que são proteínas glicadas formadas através da ligação da glicose com as proteínas circulantes, correspondendo então a avaliação glicêmica sanguínea de aproximadamente 1 a 2 semanas em felinos. (NUNES, 2014).

A terapia consiste em administração de insulina, dieta adequada com baixos índices de carboidratos, perda de peso para os obesos e exercício físico (MOONEY; PETERSON, 2015). Os objetivos do tratamento são: remissão da DM, controle dos sintomas, melhora da qualidade de vida, prevenção de hipoglicemia e complicações como cetoacidose diabética (JANUÁRIO, 2021).

A remissão diabética, definida como capacidade de o felino previamente diabético conseguir manter a normoglicemia sem a necessidade de

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aplicação de insulina, pode ocorrer em casos aonde ainda há células beta pancreáticas funcionais, sendo dependente de três fatores importantes: início precoce e apropriado da terapia insulínica, monitoramento frequente e ajustes adequados de dose da insulina e fornecimento de dieta adequada. A taxa de remissão em gatos que iniciaram o tratamento adequado dentro de 6 meses a partir do diagnóstico foi de 84% (JERICÓ et al, 2015).

II. RELATO DE CASO

Foi atendida em um consultório veterinário particular, em Bento Gonçalves, no estado do Rio Grande do Sul, uma felina, fêmea, castrada, de 5 anos de idade, com queixa de perda de peso há cerca de 3 meses, porém com acentuação nos últimos 30 dias. A felina pesava 08kg e no dia do atendimento estava com 5,5 kg, uma perda de 2,5 kg. Os tutores referiam polifagia, porém quando questionados sobre poliúria e polidipsia, negaram. A paciente se alimentava exclusivamente de ração seca comercial super premium, livre oferta, inclusive de madrugada.

Ao exame físico o escore de condição corporal (ECC) era 6/9, escore de massa muscular (EMM) era 2/3, sem alteração em ausculta cardiorrespiratória, pressão arterial realizada no consultório através do método Doppler, manguito número 2, 220 mmHG, porém, realizada nova aferição, a domicilio, utilizando o mesmo método, tendo como resultado 130 mmHg, comprovando hipertensão por estresse no consultório.

Diante do histórico de obesidade e perda de peso mesmo sem mudanças no manejo dietético, suspeitou-se de Diabetes Mellitus (DM). Solicitado então exames complementares para comprovação do diagnóstico, como exame de urina, hemograma, ultrassom abdominal, dosagem sérica de: frutossamina, triglicerídeos, colesterol total, fosfatase alcalina (FA), alanina aminotransferase (ALT), ureia, creatinina, gamaglutamiltransferase (GGT) e albumina. Teve como alterações um leve aumento na atividade da FA (117,9-VR: 4-80 U/L), ALT (99,0- VR: 6-80 U/L), glicemia (560-VR:60-120 mg/dL), sem alterações nos demais parâmetros. Na urinalise a densidade estava 1,025 (VR: 1,035-1,060), presença de três cruces de glicose (VR: negativo), sem demais alterações. A frutossamina teve como resultado 800,00 $\mu\text{mol/L}$ (VR: Gato normal não diabético 190-365 $\mu\text{mol/L}$). Na ultrassonografia abdominal a única alteração visualizada foi uma hepatomegalia moderada com contornos regulares, parênquima hiperecogênico homogêneo, sugestivo de infiltração gordurosa/hepatopatia vacuolar. Hemograma sem alterações dignas de nota.

Diante dos resultados dos exames complementares e da clínica da paciente foi possível fechar o diagnóstico de DM. O tratamento instituído foi baseado em dieta, exercícios e insulino terapia.

A dieta instituída foi com ração comercial específica para perda de peso (Satiety felinos – Royal Canin), 60 gramas divididos em 4 a 6 refeições diárias. Utilizar bolinha porta petiscos com a finalidade de estimular a caca ao alimento, realizar brincadeiras pelo menos 2 vezes ao dia. Insulina glargina (caneta, 100 UI/ML) 1 unidade pela via subcutânea a cada 12 horas. Foi colocado o sensor Libre, e após 7 dias de insulino terapia, foi ajustada a dose para 2 unidades a cada 12 horas. O sensor apresentou erro de leitura com 7 dias de funcionamento e o tutor optou por não colocar outro imediatamente. Após 15 dias do último ajuste, realizada uma curva glicêmica aonde os valores do Nadir estavam ainda acima de 200, a paciente ganhou peso, estava com 6,3 kg pois os tutores trocaram a ração para um produto comercial super premium para felinos castrados. Foi então solicitado a retomada da dieta prescrita anteriormente e prescrito 3 unidades de insulina a cada 12 horas.

Solicitado retorno em 15 dias, tutores retornaram em 30 dias do último ajuste para nova curva glicêmica. A primeira aferição da manhã, 03 horas após aplicação da insulina, estava em 46, dessa forma, foi solicitado a colocação novamente do sensor libre para monitoração constante das glicemias. A paciente estava com 6,1 kg, havendo perdido 200 gramas desde a retomada da dieta.

Após esse dia, foi realizada a monitoração das glicemias via sensor Libre, sendo que todas as glicemias ficaram abaixo de 120 mg/dL, não sendo mais necessário realizar as aplicações de insulina. A monitoração foi feita por 30 dias. Mensalmente a paciente retorna para avaliação clínica e principalmente controle de peso. Já se passaram 4 meses da remissão, a paciente segue na dieta de manutenção pois atingiu o peso meta (5 kg) e segue assintomática.

III. DISCUSSÃO

A paciente estava dentro do grupo de risco para desenvolvimento de DM, visto que era obesa, e a obesidade em felinos está descrita como uma das principais causas de resistência insulínica. (JANUARIO, 2021; COUTO, 2003) A literatura cita que gatos machos são mais acometidos que as fêmeas, os idosos mais acometidos que os jovens e os castrados apresentam mais chance de desenvolver DM (JERICÓ et al, 2015). No caso em questão a paciente era fêmea, jovem e castrada.

De acordo com Januário (2021), os sinais clínicos clássicos são poliúria polidipsia, polifagia e perda de peso. No caso relatado o tutor referia apenas perda de peso e polifagia, porém possivelmente apenas não havia percebido a poliúria e polidipsia, visto que, após terapia refere que estava tomando menos água e urinando menos em comparação com o início do tratamento.

Ao exame físico a maioria dos pacientes diabéticos recém diagnosticados realmente não tem alterações significativas, a não ser que já estejam diabéticos há um tempo, podendo apresentar baixo escore de condição corporal, neuropatia diabética, atrofia muscular, ou em casos mais graves, podem desenvolver cetoacidose diabética (CAD) e cursar com manifestações clínicas de inapetência, vômito e/ou diarreia. (COUTO, 2003.)

Em relação aos exames complementares, é esperado aumento de atividade de ALT E FA devido a hepatopatia vacuolar predisposta pela endocrinopatia. Também se espera glicosúria, diminuição da densidade urinária, que pode estar mais baixa do que apresenta devido a presença de glicose na urina, e também pode apresentar cetonúria em caso de CAD. Pode ocorrer piúria, hematúria e detecção de infecção urinária pela cultura urinária. O ultrassom abdominal é útil para investigar pancreatite, associado a realização da lipase pancreática específica (SPEC), pois podem desenvolver pancreatite aguda. No hemograma, podem apresentar anemia leve ou policitemia devido a desidratação e a presença de leucograma de estresse é variável. (JANUARIO, 2021; COUTO, 2003; JERICÓ; MOONEY; PETERSON, 2015) A paciente em questão não teve alteração no hemograma. Hipertrigliceridemia e hipercolesterolemia também podem ocorrer, não evidenciados na paciente em questão.

O diagnóstico de DM em felinos é feito através da associação das manifestações clínicas, presença de glicosúria, presença de hiperglicemia e elevação do nível sérico de frutossamina, pois os felinos podem fazer hiperglicemia e glicosúria puramente por estresse, caso ultrapasse o limiar de absorção renal (250 – 300 mg/dL). (JANUARIO, 2021) O estresse induz hiperglicemia devido a liberação de catecolaminas e neoglicogênese hepática. (TRINDADE et al, 2022).

O tratamento com insulina é sempre preconizado em felinos, utilizando-se insulinas de longa ação como a glargina, que provoca pico de ação menos pronunciado nos felinos, evitando a hipoglicemia. A dose que a literatura cita é de 1 a 2 unidade internacionais (UI) por gato (APTEKMANN et al, 2011, FERRI, 2022; MASSITEL et al, 2020), sendo utilizada 1 UI na paciente em questão. Outro ponto chave do tratamento é a dieta, visto que se faz necessário retirar a causa da resistência insulínica, nesse caso, a obesidade. Ademais é importante utilizar uma dieta com baixos índices de carboidratos, gorduras e com altas concentrações de proteínas e fibras para obter mais saciedade e melhor controle glicêmico. (MASSITEL et al, 2020). De acordo com Popp (2019), as dietas úmidas são melhores do que a seca para a finalidade de diminuir níveis de carboidratos e promover melhor controle glicêmico aumentando a taxa de remissão, porém a paciente do relato não estava acostumada com esse tipo de alimento e não aceitava.

Dessa forma, foi iniciado o manejo dietético com a ração seca comercial para perda de peso com baixos níveis de carboidratos e maior aporte proteico promovendo ganho de massa magra. Os felinos não desenvolvem pico hiperglicêmico considerável pós-prandial, por isso, podem se alimentar mais vezes ao dia, desde que respeitada a quantidade de ingestão calórica diária. (NUNES, 2014) O exercício físico promove a translocação dos transportadores de glicose (GLUT-4) em células musculares, melhorando a captação de glicose pelas células e consequentemente reduzindo a glicemia. (JERICÓ et al, 2015).

IV. CONCLUSÃO

Possível perceber que o diagnóstico precoce da doença, a instituição da terapia correta juntamente com a dieta e a dedicação dos tutores é fundamental para que se consiga atingir a remissão da DM em felinos. Além disso, importante lembrar que a remissão diabética não significa a cura da doença, sendo necessário avaliações periódicas e manutenção da dieta para que o felino não volte a ganhar peso.

REFERENCES RÉFÉRENCES REFERENCIAS

1. APTEKMANN, K.P; GUBERMAN, U.C; SUHETT, W.G. Insulinoterapia e dieta no tratamento de felinos diabéticos- revisão de literatura. Jabotical. São Paulo, 2011. <https://arsveterinaria.org.br/index.php/ars/article/view/416/339>.
2. BOBANY, Denise et al. Diabetes Mellitus em Felino- Relato de Caso. Revista de Medicina Veterinária do UNIFESO. v. 2, n.1, (2022) | ISSN 2764-3263.
3. COUTO, Nelson. Medicina Interna de Pequenos Animais. 3a edição. São Paulo: Elsevier, 2003.
4. FERRI, Amanda. Diabetes felina: relato de caso. 2022. UFSC. Curitiba, 2022. <https://repositorio.ufsc.br/bitstream/handle/123456789/238519/DIABETES%20FELIN%20-%20RELATO%20DE%20CASO%20Amanda%20Ferri.pdf?sequence=1&isAllowed=y>.
5. FREITAS, Cássia. Terapia da Diabetes mellitus felina e remissão do estado diabético. 35f. UFRGS. Porto Alegre, 2016. <https://www.lume.ufrgs.br/bitstream/handle/10183/148246/001000917.pdf?sequence=1&isAllowed=y>.
6. JANUARIO, Eric. Endocrinologia de Cães e Gatos. São Paulo: Paya, 2020.
7. JERICÓ M. Márcia; NETO, JP de Andrade; KOGIKA, M. Mery. Tratado de medicina interna de cães e gatos. Roca, 2015.
8. MASSITEL, ISABELA et al. A terapêutica do felino diabético: revisão. Pubvet, Vol.14.2020. https://web.archive.org/web/20200506052541id_/http://www.pubvet.com.br/uploads/24ca70f79b267d539981172ebc6503cd.pdf

9. MOONEY T. Carmel; PETERSON E Mark. Manual de endocrinologia em cães e gatos. 4a edição. São Paulo: Roca, 2015.
10. NUNES, Nilson. Diabetes Mellitus felina: ênfase em métodos de diagnóstico. 2014. 59f. UFRGS, Porto Alegre, 2014. file:///C:/Users/User/Desktop/TCC%20ENDOCRINO%202023/frutosamina%20em%20felinos.pdf
11. POPP, Priscila. Diabete melito em gato: revisão de literatura. 41f. UFSC. Curitiba, 2019. <https://repositorio.ufsc.br/bitstream/handle/123456789/199583/Trabalho%20de%20conclus%C3%A3o%20de%20curso%20revis%C3%A3o%20de%20literatura.pdf?sequence=1&isAllowed=y>.
12. SENE, Aline. Diabetes Mellitus em felinos. 2020. 89f. Universidade Cruzeiro do Sul. São Paulo, 2020. <https://repositorio.unipe.edu.br/jspui/bitstream/123456789/1618/1/Aline%20de%20Almeida%20Jorge%20e%20Sene.pdf>
13. TRINDADE et al. Estresse em gatos: revisão. 2022. 10f. Pubvet. 2022. https://web.archive.org/web/20230111023358id_/http://www.pubvet.com.br/uploads/e92b0095aaa3cb9a9474107a22808ae7.pdf
14. VAROLI, Camila. Diabetes Mellitus em felino. 2021. 19f. Universidade São Judas Tadeu. São Paulo, 2021. https://repositorio.animaeducacao.com.br/bitstream/ANIMA/20651/1/RCC2_Camila%20Silva%20Varoli.pdf

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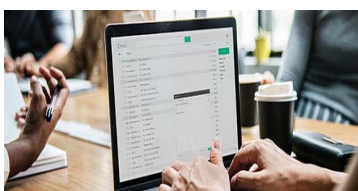
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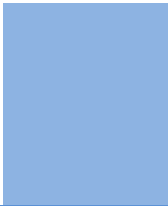
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13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.



20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.



Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

THE ADMINISTRATION RULES

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CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)
BY GLOBAL JOURNALS

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Topics	Grades		
	A-B	C-D	E-F
<i>Abstract</i>	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
<i>Introduction</i>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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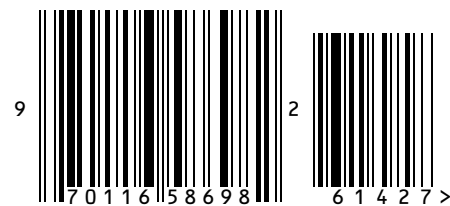
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